

SHERIFFDOM OF GLASGOW AND STRATHKELVIN AT GLASGOW

[2026] FAI 18

GLW-B470-24

DETERMINATION

BY

SHERIFF T S MILLAR

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

into the death of

ARCHIE DONALD

GLASGOW, 27 April 2026

DETERMINATION

The sheriff having considered the information presented at the inquiry, determines in terms of section 26 of the Act that:

The deceased is Archie Donald, born 22 July 2016, who lived with his parents at 105 Park View, Fauldhouse, Bathgate.

In terms of section 26(2)(a) - Archie died on 20 November 2019 at 0436 hours in Ward 3C, Royal Hospital for Children, Glasgow.

In terms of section 26(2)(b) - No accident occurred.

In terms of section 26(2)(c) - Death was caused by subacute bacterial endocarditis with extensive associated myocardial infarction in a child with chronic renal failure due to congenital nephrotic syndrome.

In terms of section 26(2)(d) - There was no accident resulting in death occurring.

In terms of section 26(2)(e) - A precaution which could reasonably have been taken, and had it been taken, might realistically have resulted in the death being avoided was for the elevated C-reactive protein (CRP) level of 98 on 5 November 2019 to have been identified by the attending consultant and blood cultures ordered as a result. This would, on balance, been positive for *Enterococcus faecalis* and prompted further investigations particularly for appropriate antibiotic treatment to treat or slow progression of the infection. Thereafter, Archie could have been monitored with an Echocardiogram if required depending on his presentation and clinical discussion for ongoing treatment as required.

In terms of section 26(2)(f) defects in any system of working which contributed to the death are:

- (i) Failure to follow appropriate guidelines and anticipatory care plan in place for Archie, in terms of which an infection specialist should have been consulted and/or blood cultures ordered where there was a possibility of line or other infection, as indicated by the regular elevated CRP levels in excess of 40mg/L between 8 October and 5 November both 2019 inclusive.
- (ii) Failure to note Archie's raised CRP level of 98mg/L on 5 November in his discharge letter and thereafter at a Multi-Disciplinary Team (MDT) meeting which normally followed an admission but did not take place and was not rescheduled. At such meeting, should it have taken place, the elevated CRP level would have been noted, highlighting possible bacterial concerns

and allowing more precise clinical pathways to be explored. At the time of his discharge, the CRP level was not available and its absence not noted.

These issues were addressed in the Significant Clinical Incident Investigation which followed (paragraphs 46-51). As the recommendations set out therein have been implemented, no further action is required.

In terms of section 26(2)(g) there are other facts which are relevant to the circumstances of the death, but which did not contribute to that outcome. On 19 November 2019 Archie was seen at a renal outpatient clinic by Dr Maxwell. He was noted to have a loud systolic heart murmur. Dr Maxwell correctly suspected bacterial endocarditis, ordered blood cultures and identified the need for an ECG and echocardiogram. She requested his admittance to the renal ward for a blood transfusion and for those tests. Due to seasonal demand, no place in the ward was available until 1915 hours, some hours later. This delayed appropriate monitoring triage and clinical care. A referral to cardiology department could have been made during this period. The cardiology department day shift finishes at 1800 hours, an Advanced Nurse Practitioner (APR) is on duty to 2100 hours and thereafter contact is through the on-duty consultant. No request was made to cardiology for those tests to be carried out during normal working times. An ECG was carried out in the evening and discussed with the Advanced Nurse Practitioner from cardiology. The on-duty cardiology consultant has no recollection of a discussion of the outcome of that ECG, which is agreed to show abnormalities which would lead to an echocardiogram. However, Archie was sufficiently stable in the morning at his outpatient appointment to await a ward placement and was

haemodynamically stable in the late evening so that an urgent Echo was not indicated and could have waited till the next morning. His deterioration in the early hours of 20 November could not reasonably have been anticipated and these delays, although regrettable, did not contribute to the outcome.

This issue was also considered at the Significant Clinical Incident Investigation, recommendations made and implemented.

RECOMMENDATIONS

I have no recommendations to make.

In relation to my finding under section 26(2)(e), the system for checking blood test results has changed. An electronic sign off system has been introduced requiring consultants to tick a box acknowledging they have seen and reviewed blood test results.

This system should help prevent future instances of human error.

In relation to my findings under section 26(2)(f) and (g), I have set out above the actions taken in respect of all areas and no further recommendations are required.

NOTE

Introduction

[1] Notice of an inquiry under the Act into the death of Archie Donald was lodged with the court on 2 April 2024.

[2] The first preliminary hearing was assigned for 15 May 2024.

[3] Notices of intention to participate were received on behalf of Greater Glasgow Health Board (GGHB) and Dr Heather Maxwell.

[4] On 15 May 2024, the Crown intimated they proposed to lead evidence by way of affidavits and were preparing a joint minute for discussion. GGHB indicated they might instruct an expert report after consideration of Crown reports. The hearing was continued to 16 July 2024, with dates of 7 to 11 October assigned for the inquiry.

[5] The hearing of 16 July was discharged administratively at the request of GGHB and to allow time for any disputed issues to be identified and of new assigned for 16 August 2024.

[6] On 16 August, the case was continued to the dates set for the inquiry, 7 to 11 October 2024.

[7] Six volumes of Productions were lodged shortly thereafter.

[8] Affidavits of witnesses after mentioned were lodged between 23 and 27 September.

[9] A victim impact statement by Mrs Caitlin Donald, Archie's mother, a list of witnesses and a joint minute were lodged by the Crown on 2 October 2024.

[10] Evidence was heard on 7, 9 and 10 October 2024, as undernoted.

[11] Having regard to the cause of death, I requested that the Crown obtain an expert report from a paediatric consultant cardiologist in respect of the treatment provided on 19 and 20 November 2019. The inquiry was therefore continued to 20 December 2024 to allow such expert to be identified and for a report to be prepared. This report was still outstanding at that date and the Inquiry was discharged administratively and a date

of 30 May 2025 assigned anew. This date was unsuitable to parties, discharged and a date of 16 June 2025 assigned as a preliminary hearing.

[12] A first report from Alan Magee, locum paediatric cardiologist, and relevant Productions, were lodged by the Crown in advance of the hearing, together with a rule 3.7 note for Greater Glasgow Health Board. Further enquiries were necessary to clarify issues raised in that report and to enable Dr Magee to finalise same. A further preliminary hearing was assigned for 9 September 2025 and 24 and 28 November 2025 for the hearing of evidence.

[13] Between 19 September and 24 November the Crown lodged updated Inventories of Productions and GGHB lodged various witness statements, affidavits, Inventory of Productions and rule 4.15 note in relation to an expert report anticipated from Mr Serban Stoica, consultant in cardiac surgery.

[14] Evidence was heard as undernoted on both dates. Joint minutes were lodged agreeing evidence of Dr Maria Ilina and the expert report by Mr Stoica.

[15] The inquiry was thereafter adjourned for the hearing of submissions to 25 February 2026. A copy of each submission is attached in appendices hereto.

[16] Representation at the inquiry:

Crown: Ross Price, advocate depute;

GGHB: Kate Bennett, advocate;

Dr Maxwell: Victoria Arnott, advocate.

[17] A substantial amount of evidence was contained in the joint minute lodged.

[18] In addition, evidence was taken from eight persons by means indicated:

1. Mrs Caitlin Donald - Evidence by statement (read by the advocate depute)
2. Ben Reynolds, consultant paediatric nephrologist - Evidence by affidavit
3. Heather Maxwell, consultant paediatric nephrologist - Evidence in person, by written statement and examination (Monday 7 October 2024)
4. Louise Pittendrigh, consultant paediatric nephrologist - Evidence by affidavit and in person (Monday 24 November 2025)
5. Iona Morgan, ST7 paediatrics - Evidence by affidavit
6. Mr Jamie Redfern, director of Women and Children's Directorate for NHS Greater Glasgow and Clyde - Evidence by affidavit
7. Professor Richard Coward, consultant paediatric nephrologist - Evidence by expert report and in-person by Webex at my request (Wednesday 9 October 2024)
8. Dr Martin Connor, consultant in Microbiology - Evidence by expert report and in-person by Webex at my request (Thursday 10 October 2024)
9. Advanced Nurse Practitioner Donna Nelson – in person (Monday 24 November 2025)
10. Dr Karen McLeod – by statement and in person (Monday 24 November 2024)
11. Dr Alan Magee - Evidence by expert report and in person by Webex at my request (Friday 28 November 2025)

12. Serban C Stoica, consultant in cardiac surgery - by expert report agreed by joint minute
13. Melanie Hutton, general manager for paediatrics and neonates at the Royal Hospital for Children - Evidence by affidavit.

Where evidence was by affidavit, statement or report, copies were to be available for interested parties.

Legal framework

[19] This was a discretionary inquiry held under section 4 of the Act, the death having occurred in Scotland in circumstances which give rise to serious public concern and the Lord Advocate had decided it to be in the public interests for an inquiry to be held into the circumstances of the death. The procedure to be followed in such inquiries is governed by provisions of the Act and the Act of Sederunt (Fatal Accident Inquiries Rules) 2017. The purpose of such 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 1(3) of the Act). Section 26 requires the sheriff to make a determination and section 26(2) sets out the factors relevant to the circumstances of death insofar as they have been established to the satisfaction of the sheriff. 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

sheriff has to be satisfied on the balance of probabilities that there are precautions or defects in the system of working which, had they been taken, might realistically have avoided the death or defects in the system of working which contributed to the death and there is a reasonable possibility that any recommendations made may prevent deaths in similar circumstances in the future. The scope of inquiry therefore extends beyond simply establishing the facts relevant to the death of Archie Donald, whether it was to see if future deaths occurring in the circumstances or similar circumstances could be prevented and to restore public confidence and allay public anxiety arising from the circumstances of the death of Archie Donald. The inquiry has the benefit of hindsight in considering what precautions might reasonably have been taken, not simply whether the actions taken were reasonable in the circumstances. In *Karen Duncan v The Lord Advocate* [2025] CSIH 27, the Inner House considered, in relation to section 26(2)(e):

“If the evidence presented at the FAI shows that a precaution could reasonably have been taken and that had it been taken it might realistically have resulted in the death or any accident on the death being avoided then the sheriff must set out such a precaution in his or her determination.”

However, in the Explanatory Notes to the Act under that section, it states: “a precaution might realistically have prevented a death if there is a real or likely possibility, rather than a remote chance, that it might have so done.” Similarly, section 26(2)(f) refers to “any defects in any system of working which contributed to the death or any accident resulting in the death”. Any finding under this heading requires a causal, not remote, link to be established. Section 26(2)(g) allows the inquiry to consider all circumstances relating to the death, even if these have no causal link to the particular death, to

highlight precautions which could reasonably have been taken and may assist in lessons being learned in the future. The determination is limited to the matters defined in section 26 of the Act which also provides that the determination shall not be admissible in evidence nor be founded on in any judicial proceedings of any nature, thus encouraging full and open exploration of the circumstances of a death.

Summary of medical history and treatment

[20] Paragraphs 1 to 14 inclusive are historical only and are included to demonstrate the level of quality care provided for Archie in respect of his underlying condition.

1. Archie was born by caesarean section at 38+1 weeks gestation on 22 July 2016 in St John's Hospital, Livingston. He was the first child of Caitlin Donald and Christopher Donald.
2. On 15 August 2016 Archie was referred to the paediatric endocrinology team at the Royal Hospital for Children, Edinburgh. This followed a finding of elevated "Thyroid Stimulating Hormone" (TSH) levels which were detected during two Guthrie screening tests performed on 27 July 2016 and 10 August 2016. Archie was seen in the outpatients' clinic on 16 August 2016 and 23 August 2016; blood tests were carried out on both dates and on 17 August Archie was commenced on levothyroxine (a type of hormone used to treat some thyroid conditions). On review on 23 August 2016 Archie was noted to be very pale, with a grossly distended abdomen, and a small umbilical hernia. Mrs Donald reported that Archie had been feeding

excessively. Archie was admitted to the Royal Hospital for Children, Edinburgh, before being transferred the following day to the Royal Hospital for Children, Glasgow.

3. Between 24 August 2016 and 18 November 2016 Archie was admitted to the Royal Hospital for Children, Glasgow, ("RHC") under the paediatric nephrology team. During this admission Archie was diagnosed with probable Congenital Nephrotic Syndrome. This diagnosis was based around the clinical presentation of anaemia, generalised oedema, low levels of blood albumin, and high levels of urinary albumin. The diagnosis was confirmed by the presence of two pathological variants of the NPHS1 gene. During his admission Archie was commenced on daily intravenous albumin infusions which Mrs Donald and other relatives were trained to administer prior to his discharge.
4. Upon discharge, Archie's management consisted of him receiving regular intravenous albumin infusions at home, diuretic therapy, and anticoagulation therapy. Archie had Central Intravascular Catheter ("CVC") lines in place.
5. Archie was reviewed in the outpatient clinic on 22 November 2016 and was readmitted to the RHC between 24 November 2016 and 26 November 2016 for a planned right inguinal hernia repair. A left inguinal hernia repair had been completed during his earlier admission on 28 September 2016.

6. For the remainder of 2016, and throughout 2017, 2018, and 2019, Archie was closely monitored and attended at regular outpatient appointments with the paediatric nephrology team at RHC.
7. Archie required admission to hospital on many occasions throughout this period, including several treatment courses for infection.

Hospital admissions between 2016 and 2018

8. Between 13 December 2016 and 19 December 2016 Archie was admitted to RHC with bronchiolitis. He was admitted to St John's Hospital, Livingston, with fever on 17 January 2017 and thereafter was admitted to RHC between 18 January and 10 February 2017 due to sepsis associated with an infected CVC line. Initial blood cultures from his CVC line isolated both an *Enterococcus faecalis* organism and *Klebsiella pneumoniae*. Subsequent cultures later isolated *Clostridium tertium*. On 18 February 2017 Archie was readmitted to RHC with fever and increased work of breathing. Blood cultures from his CVC line isolated *Klebsiella pneumoniae* and his CVC line was removed and a new line inserted. Archie remained in RHC until 8 March 2017; during which time he underwent an open left kidney nephrectomy and insertion of a gastrostomy. He was subsequently readmitted to RHC between 22 March and 27 March 2017 for intravenous antibiotic treatment in relation to recurrent line sepsis; blood cultures at this time had again isolated *Klebsiella pneumoniae*.

9. On 2 July 2017 Archie was admitted to RHC with a gastro-intestinal bleed relating to over-anticoagulation. He was discharged on 6 July 2017. He was admitted to RHC again between 19 August 2017 and 23 August 2017; this time suffering from haematemesis (vomiting blood). Between 18 October 2017 and 23 October 2017 Archie was admitted to RHC with fever and low platelet count. Tests confirmed that he had a central line infection, with *Klebsiella pneumoniae* again being isolated from blood cultures and Archie was treated with intravenous antibiotics. He was again admitted to RHC for an elective change to his gastrostomy tube between 14 November 2017 and 15 November 2017.
10. Between 19 March 2018 and 21 March 2018 Archie was admitted to RHC for CVC line replacement; this was due to the CVC line moving and not working, causing some pain. Between 17 May 2018 and 22 May 2018 Archie was admitted again to RHC for reinsertion of his CVC line after the previous line was found to be leaking and was no longer in the situated correctly.

Care and treatment throughout 2019

11. On 4 January 2019 Archie attended at St John's Hospital, Livingston, following 2 - 3 weeks with a cough. Archie was examined and thought to be suffering a viral infection as there was no evidence of a bacterial infection in and around his CVC lines. He was prescribed prophylactic

antibiotics and discharged the same day. He was seen in the outpatient clinic on 15 January 2019 at which time it was noted that Archie had been having a “bad time” since starting at nursery around 6 weeks earlier, with recurrent viral infections attributed to his exposure at nursery to infections carried by other children.

12. Archie attended at the Accident and Emergency Department of St John’s Hospital, Livingston, on 14 March 2019 having been experiencing abdominal pain at night. He was noted to also have been experiencing a high temperature which was attributed to teething. Archie was admitted to the paediatric ward for further assessment before being discharged later the same day.
13. In July 2019 Archie attended at the cardiology clinic at RHC for an echocardiogram; this formed part of his workup towards receiving a kidney transplant. His heart was recorded to be normal at this time.
14. On 17 September 2019 Archie saw Dr Heather Maxwell, consultant paediatric nephrologist, at the outpatient clinic. Archie was noted to have been “well since last seen with a good appetite and plenty of energy” and it was noted that he was occasionally tired but “managing well at nursery”.

Admissions and treatment between 8 October and 24 October 2019

15. Archie attended at the outpatient clinic again on 8 October 2019. This followed his CVC line not working the previous day during an

appointment at St John's Hospital in Livingston. At the appointment on 8 October 2019, Archie's line was working. It was noted that Archie had not been sleeping as well as usual for the last couple of nights and that he had been grumpy over the preceding days. Archie was noted to have been unwilling to be examined, however Dr Maxwell also noted that there was "no obvious source of infection" although Archie did look dehydrated. Archie's blood results became available after the clinic appointment and after he and his family had gone home. His C-reactive protein (CRP) level was recorded to be 81mg/L (normal range for CRP level is <10). This level was considerably higher than CRP results on 27 August of 6 and of 17 September of <1. The raised CRP was considered at the time to be suggestive of an infection. No blood cultures were taken, unlike in previous infections in 2017 when line infection was suspected. Archie's parents were informed. They were advised to increase his fluids and to seek medical attention should Archie become unwell. A review was arranged at St John's Hospital for the following week. Archie's next outpatient clinic appointment was brought forward by 2 weeks

16. Archie was reviewed at St John's Hospital on 16 October 2019. He appeared well and his CRP was 25mg/l.
17. On 22 October 2019 Archie saw Dr Louise Pittendrigh, consultant paediatric nephrologist, at the outpatient clinic. It was recorded that Archie had been "unsettled for the past 4 weeks and for the past 5 days has

had a cough and cold". Archie was noted to have no fever, no vomiting, and no rash, but looked "generally pale" with some mild increased work of breathing. His CRP level was recorded as 47mg/L. On the basis of his overall appearance, and that he had been unwell for some time, Dr Pittendrigh admitted Archie to the inpatient ward for further assessment. No blood cultures were taken.

18. Archie remained on the ward until his discharge on 24 October 2019. During this admission Archie was administered antibiotics for a suspected chest infection following patchy changes shown on his chest x-ray.
19. He was recorded to have remained well on the ward, with stable observations. His CRP level was recorded as 49mg/L. Prior to discharge a flow murmur was evident. This is often noted in healthy children and did not raise concerns. It was not recorded in Archie's discharge note or letter.

Outpatient appointment on 5 November 2019

20. On 5 November 2019 Archie attended at an outpatient appointment with Dr Heather Maxwell. It was recorded that Archie had been unwell for a period of around 3 - 4 weeks, although he was "now getting over his upper respiratory tract infection". His appetite had not been good but had improved recently. It was further noted that Archie was becoming more symptomatic from his renal disease and that arrangements would be made for a peritoneal dialysis catheter to be placed in the coming months in

preparation for Archie receiving dialysis. Dr Maxwell brought Archie's next outpatient appointment forward to 2 weeks. His CRP level was recorded as 98mg/L. Dr Maxwell did not notice that high level as it was not available with readings seen by her, nor was she aware of the flow heart murmur recorded in medical notes on 24 October having only reviewed the discharge note and letter. No MDT meeting took place after this appointment. The discharge letter, recording the CRP level, was not reviewed by Dr Maxwell before issue and was signed electronically by administrative staff. As a result of this omission, no further tests, including blood cultures, were undertaken.

21. Archie's CRP level had been consistently >40 since 8 October, other than one of 25 on 18 October. CRP levels above 40mg/L are often observed in bacterial infections, albeit a non-specific biomarker for infection. If the raised CRP level of 98 been noticed on 5 November, he should have been assessed for infection and blood cultures undertaken. On the balance of probability, these blood cultures would have been positive for *Enterococcus Faecalis*. This in turn should have led to further investigations, including cardiac Echo, and a diagnosis of infective endocarditis. Had that diagnosis been made following 5 November, then with appropriate antibiotic treatment and monitoring, Archie would not have developed the subsequent myocardial infarction and his death prevented.

Admission to RHC on 19 November 2019

22. Archie attended his next outpatient clinic appointment on 19 November 2019 with Dr Heather Maxwell. Prior to the clinic appointment with Dr Maxwell, Archie's blood was taken from his CVL by Sister King. At around 1015 hours on 19 November 2019 he saw Dr Heather Maxwell. Archie was recorded as continuing to be "quiet and less energetic than previously" and "very pale". On examination, Dr Maxwell noted that Archie's chest was clear but there was heard a "loud systolic murmur" which had not been heard previously. In view of the pallor and new murmur, Dr Maxwell arranged for urgent extra blood tests to be taken peripherally. The purpose of these tests was to obtain an accurate haemoglobin level, to cross match blood for transfusion, and to obtain peripheral blood cultures. Archie and Mrs Donald were asked to wait until the results of Archie's blood tests.
23. The urgent peripheral blood tests came back showing a low haemoglobin of 64g/l. Dr Maxwell decided to admit Archie for a transfusion to address the low haemoglobin and, in light of the new murmur, for investigations into possible bacterial endocarditis. Those investigations were to include an ECHO (echocardiogram) and blood cultures. These instructions are not recorded in the medical notes and no referral to the Cardiology Department was made at that time. Dr Maxwell contacted the renal

inpatient Ward (3C) between around 1200 and 1230 hours on 19 November 2019. There was no bed immediately available in the ward and so Archie and Mrs Donald were asked to wait in the clinic area until a space on the ward could be found. The Clinical Decision Unit was also full at this time.

24. Archie's full blood test results were available later in the day, at around 1300 hours. They were discussed at the post-clinic review meeting at around 1500 hours. These results showed that Archie's CRP was still elevated at this appointment at 85mg/L. Dr Maxwell recorded that Archie had now had "an elevated CRP for some time". Archie was also noted to have low potassium, despite being on supplements for this. The need for a transfusion was discussed as was the need for further investigation for possible bacterial endocarditis in light of the new murmur. Those present at the meeting were told that a room had become available in Ward 3C and was being cleaned in preparation for Archie's arrival.
25. Archie and Mrs Donald remained in the outpatient department until around 1630 hours when Archie was transferred to the ward treatment room to wait for a bed. Archie was not seen by any clinician during that period.
26. At around 1800 – 1830 hours Archie was "clerked in" to Ward 3C by Dr Ryan, ST432 and was thereafter admitted to Ward 3C at around 1915 hours and his first set of observations were obtained at this time by Staff Nurse Lough. At this time Archie was noted to have a Paediatric

Early Warning Score (PEWS) of 5, raised blood pressure, and a raised temperature of 38.3C. Archie was also noted to be “very upset” when observations were taken. Staff Nurse Lough noted that Archie would be re-checked around 30 minutes later when more calm.

27. On review by Dr Aoife Ryan at around 1950 hours, Archie’s temperature was noted to have spiked to 38.3C. He is recorded as appearing pale with a mottled appearance, and to be upset and miserable. Dr Louise Pittendrigh, who was the consultant on call for the evening of 19 November into the morning of 20 November, was asked to review Archie. Dr Pittendrigh instructed for repeat cultures to be obtained from Archie’s central line, antibiotics to be prescribed, a portable chest x-ray to be carried out, and an electrocardiogram (ECG) to be carried out. Dr Pittendrigh noted that the Echo requested by Dr Maxwell earlier that day had not yet been carried out and discussed Archie with the Cardiology Advanced Nurse Practitioner. It was agreed that the Echo would be carried out the following day unless the findings of the ECG were concerning. An ECG was carried out and showed abnormalities, causing concern to Dr Pittendrigh.
28. At around 2030 hours Dr Pittendrigh reviewed Archie again. It is recorded that Archie was sitting up, alert, and watching an iPad at this time. Archie’s temperature remained high between 38.3C - 39C. Dr Pittendrigh reviewed his chest x-ray and ECG and thereafter spoke again with the Cardiology Advanced Nurse Practitioner. The ANP later discussed the

ECG with the on-call Cardiology Consultant, Dr McLeod, who has no recollection of abnormalities in the ECG having been discussed with her. It was decided that an Echo was to be carried out the following day. Had Dr McLeod been aware of those abnormalities in the ECG, she would have recommended that an Echo be done that evening.

29. When nursing staff attempted to give Archie antibiotics it was noted that his central line was blocked preventing the administration of antibiotics and preventing cultures to be obtained. A cannula was inserted for antibiotic administration and cultures were also obtained peripherally.
30. Archie was reviewed by Dr Pittendrigh again at around 2230 hours. It was noted that the cannula that had been inserted had "tissued" and that a second cannula had been sited to allow for antibiotic administration by Dr Iona Morgan, ST7. Dr Pittendrigh recorded that Archie was "haemodynamically stable" at this time.
31. At around 2300 hours nursing staff recorded that Archie was now asleep, his medication was up to date, and that Mrs Donald was present with him and attending to his care.
32. Dr Pittendrigh recorded at around 2330 hours that Archie was to have an ECHO "first thing and that PICU (paediatric intensive care unit) were aware of Archie".
33. Dr Pittendrigh left the ward at around 0000 hours and handed over the care of Archie to Dr Iona Morgan.

34. Observations were carried out at around 0240 hours on 20 November 2019 by nursing staff. At this time Archie's PEWS score was noted to be 2, based on his tachypnoea (rapid, shallow breathing) and slight hypertension. It was also recorded that Archie was grunting when breathing. At around 0250 hours blood gas was obtained from Archie and his heart rate was noted to be between 160 – 178 bpm (beats per minute). It was recorded that Dr Pittendrigh was contacted.
35. Further observations were carried out by nursing staff at around 0303 hours. At this time, Archie's PEWS was noted to be 7 due to his tachypnoea, tachycardia (fast heart rate), and slight hypertension. It was also recorded that medical staff were aware.
36. Dr Iona Morgan reviewed Archie at around 0315 hours. It was recorded that Archie was awake and unsettled, was grunting, and that Archie's observations had been satisfactory until he had awoken. It was noted that Mrs Donald thought that Archie was presenting similarly to how he had been at home. Dr Morgan recorded that she had discussed Archie with Dr Pittendrigh and that the instruction was to "sit tight" and to re-discuss if Archie was not settling.
37. At around 0325 hours Mrs Donald pressed the call buzzer due to Archie vomiting and opening his bowels. Mrs Donald was holding Archie at this time. At around 0336 hours the emergency buzzer was pulled as Archie

had stopped breathing. Dr Iona Morgan attended immediately, along with nursing and other medical staff.

38. On arrival, Archie was observed to be pale, unresponsive, and with agonal gasping breaths and no palpable pulse. Cardiopulmonary resuscitation (CPR) was commenced and Dr Pittendrigh was called to attend at around 0337 hours. The “crash team” attended, including consultant in paediatric intensive care Anne McGettrick and anaesthetist Dr Barton, and took over emergency treatment. Archie was observed to be cyanosed, with no respiratory effort and no pulse. Dr Pittendrigh attended whilst resuscitation was ongoing. There was no viable signs of life throughout resuscitation and, after a period of around 55 minutes, the decision was taken to withdraw emergency treatment. Mrs Donald was present throughout this time.
39. Life was pronounced extinct at 0436 hours on 20 November 2019.
40. Following the death of Archie, the repeat cultures that had been obtained from Archie’s central line earlier that evening were provisionally reported to have isolated Streptococcus. This organism was later identified as an Enterococcus Faecali species.

Post mortem examination

41. A post mortem examination was conducted on 26 November 2019 at the Queen Elizabeth University Hospital, Glasgow, by consultant paediatric

and perinatal pathologist Dr Dawn Penman. On 1 May 2020, Dr Penman amended the cause of death to:

1a. Subacute bacterial endocarditis with extensive associated myocardial infarction in a child with chronic renal failure due to congenital nephrotic syndrome.

42. The final post mortem report conclusions are contained at pages 15 - 17 and are summarised as follows:

“Archie was born with congenital nephrotic syndrome, which causes failure of the kidneys...

‘... He suffered from anaemia and chronic renal failure and had previously undergone a left nephrectomy. His remaining kidney function was insufficient and kidney transplant was planned...

‘Due to his condition, Archie was regularly followed-up by the Renal Team at the Royal Hospital for Children, with his most recent appointment on the 5th November 2019. At this time, his mother advised hospital staff he had been unwell for several weeks but was gradually improving. It was noted that he had raised infection markers and he was anaemic again...

‘On the 19th November 2019, Archie attended QEUH for a routine appointment and was observed to be lethargic, breathless and had reduced appetite. His temperature was normal and there had been no vomiting or diarrhoea. He was seen by Dr Heather Maxwell and admitted as an in-patient to investigate the cause of the raised inflammatory markers and to treat the anaemia...

‘On the 20th November 2019 at 0300hrs, when a routine blood test was carried out, an abnormal gallop heart rhythm was noted, suggestive of heart failure. Archie was distressed and closely monitored. At 0330hrs, Archie vomited and had a bowel movement and had a cardiac arrest at the same time. Resuscitation was unsuccessful and at 0436hrs a decision was made to cease CPR and life was pronounced extinct...

'Following this, provisional results from microbiology showed Streptococcus present in peripheral and central lines...

'Postmortem organ histology has confirmed that there are vegetations affecting the aortic valve and also present in the right atrium... The appearances are in keeping with subacute endocarditis... **The endocarditis is of long standing, at least weeks to months duration.**(my emphasis) The myocardial infarction has been a more recent consequence of this occurring hours to days before Archie's death...

'Postmortem microbiology has shown a number of organisms are isolated, though Enterococcus faecalis has been grown from left middle ear, blood, spleen and lung. The microbiology has been reviewed together with a microbiologist and this patient had 3 antemortem blood cultures – two cultures labelled peripheral with Enterococcus faecalis along with Enterococcus faecalis and Staph epidermidis in a culture labelled as Hickman line... Enterococci can represent postmortem flora but are also a recognised cause of endocarditis. In this case, the fact that there were also antemortem cultures with Enterococci in them raises index of suspicion that this could be a genuine Enterococcal endocarditis, especially in the context of the clinical scenario... The Staphylococcus epidermidis isolated is felt unlikely to be significant in the context of native valve endocarditis, although it might have been colonising his long line...

'Postmortem virology shows evidence of rhinovirus in lung fluid though with a CT value 38 suggesting this is a previous infection rather than an active infection...

'Overall, the postmortem findings are those of subacute endocarditis with vegetations in the heart and histological confirmation of this. **This has resulted recently, in extensive myocardial infarction though the histological appearances suggest this process has been present for quite some time prior to Archie's death and may well explain his clinical presentation. It may well be that the source of the infection has initially been his central line.**" (my emphasis)

Guidelines and care plans

43. The Board's Guideline for Management of Pediatric Line Related Sepsis

(Production 13) in place at the relevant dates, includes, inter alia, the

following:

“if in any doubt, the most appropriate action should be discussed with infection specialist (clinical microbiology or infectious diseases) It is recognized that each patient is unique. The following initial actions are recommended in patients with possible or probable line related sepsis:

- (1) urgent senior clinical review
- (2) Blood cultures...
- (3) Review of other sources of infection....
- (4) Consultation of previous microbiology results...
- (5) If in any doubt, early clinical review and discussion with an infection specialist should occur.”

44. An anticipatory care plan was also in place for Archie. This was reviewed

regularly and shared with a number of other professionals including

Ben Reynolds, then lead clinician for Archie. He has signed to

acknowledge that the care plan has been discussed, reviewed and agreed

with him as lead clinician. The care plan Archie's from GP records current

at the relevant dates (Production 15 pages 201 - 213) included:

Under heading “About my condition”:

“Be concerned if: Observations outside normal parameters for age”.

Under heading “Management of my episodes of acute illness”

“How to manage: Chest infection/other

Clinical management advice: Attend Emergency department at St John's Hospital, Livingston for initial assessment. Obtain full bloods, viral screen and urine sample. If bacterial infection is suspected there

should be a low threshold for starting antibiotic(s) orally or intravenous therapies as necessary, being mindful of renal function and close monitoring of levels”

Significant Clinical Incident Investigation

45. A Significant Clinical Incident Investigation (SCII) was undertaken following the death of Archie Donald by Greater Glasgow and Clyde Health Board. This review was undertaken by a team made up of staff from paediatric nephrology, paediatric respiratory, and nursing. Their report, dated 16 October 2020, details the key findings of their review and comments on particular aspects of the care and treatment provided to Archie. No microbiologist or infection specialist was part of the review team.
46. The SCII team concluded that there were “issues identified which may have caused or contributed to the event.
47. The SCII team’s report details three recommendations and these are contained at page 28 of their report. Details of the implementation of these recommendations are contained in three action plans contained at Crown Productions 7, 8 and h9.
48. The SCII was undertaken without having access to the final post mortem report, and without input from an expert in microbiology to interpret the significance of ante and post mortem microbiology isolates. The final post mortem report was provided to the SCII team on 15 December 2020. They

issued an Addendum to their report on 17 December 2020 confirming there were no additional findings which would change the SCII conclusions or recommendations and no changes were made to the report.

49. The key issues identified and lessons learned are set out in section 4 of the original report. These included:

“A clinical pathway should be developed to ensure that children with renal disease and a central line in place, with raised inflammatory markers or any clinical sign of sepsis is managed with blood cultures and antibiotic until line sepsis is excluded.

A better system for the reviewing of laboratory investigations taken in clinic needs to be developed to ensure that results are not missed and are acted upon appropriately”.

In relation to the admission procedure on 19 November, the report included:

“Where a child is judged to be sufficiently unwell to require direct admission from clinic they should not be left waiting in the outpatient clinic. A bed should be found for them as soon as possible, even if it is not on the final ward (in this case the renal ward, 3C). This will ensure that the child can be appropriately monitored, triaged and clinical care can begin in a timely manner”.

50. The report made three recommendations:

“There are currently no formalised arrangements for following up blood results from clinic, particularly if there is no post clinic meeting.

- It is recommended that all available bloods are reviewed in the post clinic meeting, with a specific plan in place for how any outstanding results will be followed up. If under exceptional circumstances no post clinic meeting is possible then the consultant must put in place an appropriate plan for all blood results to be followed up and acted upon.

Renal patients with central lines in place are a vulnerable group of patients who are at high risk of line infection and sepsis.

- A protocol should be developed for this patient group so that any clinical signs consistent with potential infection such as fever or elevated inflammatory markers can be managed appropriately with the necessary investigations and antibiotic cover.

This patient was kept in an inappropriate clinical environment for too long before admission to the ward and there was no clear plan about what should happen if the admission was delayed.

- Any patient requiring admission from the outpatient clinic should be admitted to an appropriate clinical environment as soon as possible so that they can receive appropriate observations and management. This should be by contacting the flow coordinator , who will be responsible for finding a place to the child to be admitted to”

51 All recommendations were accepted and have been implemented by the Board.

The process for review of available bloods includes the requirement for the consultant to put in place an action plan if no post clinic meeting has taken place. Results are highlighted and remain so until acknowledged. This is now part of induction training for all staff.

A protocol is now in place to ensure any clinical signs consistent with potential infection such as fever or elevated inflammatory markers will be managed appropriately with necessary investigations and antibiotic cover.

A policy for placement in a ward forms part of induction training and is reviewed on a 2-yearly basis to ensure adherence.

Expert reports and evidence

Written reports were submitted by Professor Richard J M Coward

(Production 10), Dr Martin P Connor (Production 11), Dr Alan

McGhee(Production 37) and Mr Serban Stoica (Productions 1 and 6 for GGHB).

52. Professor Coward is professor of Renal Medicine and Consultant Paediatric Nephrologist at Bristol Royal Hospital for Sick Children and University of Bristol Medical School. He is a suitably qualified expert to provide assistance to the inquiry. Professor Coward summarized Archie's treatment and concluded:

"I think the management of Archie Donald was high-quality by the paediatric nephrology team in Glasgow Royal Children's Hospital throughout his life. He was regularly followed up by experienced consultant paediatric nephrologists and when concern was raised seen more often or admitted. In the last months of his life he had fluctuating levels of CRP but without a marked history of fevers and/or night sweats. He was appropriately investigated I think and the diagnosis of recurrent viral illnesses and then a chest infection were reasonable. He had been going to nursery and this is classically an environment where children are appropriately exposed to many viral pathogens. He also had chest Xray changes suggesting a chest infection so the commencement of azithromycin was appropriate. Four months prior to his death he had a normal ECHO performed. When seen by Dr Heather Maxwell in a routine clinic on the 19th November 2019 he was examined and a new murmur was detected. He was then admitted to a busy children's hospital in the winter. He received good care and multiple blood cultures. He received antibiotics at 23.00 but as Dr Connor points out in his expert microbiology report this is the appropriate management of possible infective endocarditis in order to identify the appropriate antibiotics to use for long-term treatment. I do not think the delay in antibiotic administration led to this child's death."

Specifically asked whether the CRP of 98mg/L of 5 November should have resulted in blood cultures been performed he stated:

“I do not agree with this statement. Archie had fluctuating levels of CRP and was closely followed up. Indeed, his next outpatient appointment was brought forward by Dr Maxwell on the 5th of November. He did not have history of fevers and his line had been accessed frequently. He had had an albumin infusion the day before clinic. I think there were enough reasons at this time not to consider that blood cultures were necessary. As stated previously he had also had a recent normal ECHO examination.” (this last referring to 16 July 2019).

53. Professor Coward provided further evidence on 9 October 2024 by video link, principally in relation to high CRP levels noted from 8 October on. He confirmed subacute endocarditis was very uncommon, particularly in children and more so in this case due to lack of night sweats or fever. Throats swabs, if taken, would not show every viral infection. He would not have ordered throat swabs. He accepted that the high CRP could indicate a line infection but he would expect to have seen a spike in temperature or shaking after infusion if that were the case. He was not aware a CRP in excess of 40mg/L was indicative of a bacterial infection and would defer to a microbiologist on that point. He was not aware of the guideline nor care plan referred to above. He accepted that, where there is a possibility of line infection, then the guidance should be followed and blood cultures taken.
54. Dr Martin P Connor is a consultant microbiologist, Clinical Director Diagnostics Directorate, NHS Dumfries and Galloway. He had reviewed

Archie's medical notes, post mortem report and significant clinical incident report. He is a suitably qualified expert to provide assistance to the inquiry. He was asked to provide a microbiology opinion on diagnosis and causation in respect of Archie. The treatment of Archie's congenital nephrotic syndrome was not within his area of expertise and, in any event, is not in issue.

55. The raised CRP levels from 8 October 2019 to admission on 19 November were noted. CRP levels increase dramatically in response to injury, infection and inflammation. Level above 40mg/L are often observed in bacterial infections, although are a non-specific marker for infection. As Archie was known to have infective endocarditis on 19 November, then the CRP of 98 noted on 5 November was, on balance of probability associated with infective endocarditis. If the raised CRP had been noticed on 5 November 2019, he should have been recalled to hospital for assessment, blood cultures should have been taken and, on the balance of probability, these would have been positive for *Enterococcus faecalis* leading to further investigations, a diagnosis of endocarditis, appropriate treatment and not develop myocardial infarction. He concluded, in alia:

"6.5. If the raised CRP on 5 Nov 2019 had been noticed and investigated, then on balance of probability, the diagnosis of infective endocarditis would have been made earlier, and his subsequent myocardial infarction and death prevented."

56. Dr Connor provided further evidence on 10 October 2024 by video link. He agreed that throat swabs would not disclose the nature of infection nor make any difference here. He also accepted that he could not identify the source of infection nor say it was from the central line. However, the longer a line is in place, the more likelihood there is of infection. Archie had a history of line infection, showing he was susceptible to such and the raised CRP levels should have required further investigation. Blood cultures would have been appropriate. If asked at the time, as a microbiologist, he would have recommended blood cultures. He advised that lack of night sweats/fever was more common than generally thought. While normal with endocarditis, these were not always present. A CRP in excess of 40mg/L is indicative of infection or inflammation and is more likely to be bacterial the higher the reading. He noted Archie was regarded as having a respiratory infection, or a viral infection picked up at nursery. He advised that such infections would not result in a CRP level of 40mg/l, but a much lower level. By 5 November, the CRP levels had been consistently high therefor, no later than this date, blood cultures should have been taken. The infection would then have been identified and treatment started. Raised CRP levels indicated possible line infection and, if the care plan and guidelines had been followed, blood cultures should have been taken. He would expect all clinicians to be aware that CRP

levels in excess of 40mg/L were indicators of bacterial infection and investigated and blood cultures taken.

57. Dr Alan McGhee is a locum paediatric cardiologist in Bristol, first appointed as a consultant in 1999. He is a previous chair of the Specialist Advisory Committee for Paediatric Cardiology at the Royal College of Physicians and president of the British Congenital Cardiac Association. He is a suitably qualified expert to provide assistance to the inquiry.
58. Dr McGhee was invited to give evidence following upon my request that the treatment and care provided for Archie on 19 and 20 November 2019, particularly in respect of cardiology input, be explored. The expert report by Dr Stoica, agreed by joint minute, was also in response to my request.
59. Dr McGhee had access to Productions 2, 3, 10-13, 16, 19, 29 and 32. In addition he had sight of statements or affidavits of Dr Reynolds, Dr Pittendrigh, Dr Morgan. Dr Maxwell, ANP Nelson, Dr McLeod. He gave evidence by Webex on 28 November 2025.
60. Dr McGhee explained that infective endocarditis is relatively rare in children. It is an inflammation of the endocardium, the inner lining of the heart, as well as the four valves separating the four chambers of the heart. Vegetations can adhere to the leaflets of the aortic valve, possibly damaging the valve itself and embolization can occur at any time causing complete or partial interruption to arterial blood supply. Had an echocardiogram been undertaken, such vegetations would have been

revealed. It was unlikely that the subsequent cardiac arrest would have been predicted. An MDT discussion would then have taken place to decide on further treatment, including possible surgery. The decision to wait to the following day for the echocardiogram was not unreasonable as Archie appeared haemodynamically stable.

61. Dr McGhee agreed with the conclusion of Dr Stoica that it was most probable that vegetation from the aortic valve broke off and occluded some of the coronary circulation, shortly before Archie's terminal decline. His treatment prior to that event did not contribute to that decline but did delay a discussion on treatment at an MDT. Such discussion was unlikely to recommend urgent surgery.
62. The final evidence before the inquiry was the expert report of Mr Serban C Stoica. Mr Stoica is a consultant in cardiac surgery at the University Hospitals Bristol NHS Foundation Trust and associate professor at the University of Bristol. He specialises in congenital heart surgery and complex cardiac surgery in all ages. He is a suitably qualified expert to provide assistance to the inquiry. His report was agreed in a joint minute and had been referred to and accepted by Dr McGhee.
63. In preparation for his report, Mr Stoica had access to Archie's medical records, affidavits and draft statements and previous expert reports. His report concentrated on Archie's treatment on 19 and 20 November in

relation to possible cardiac interventions. He has experience in treating children with endocarditis.

64. In summary, regarding management of Archie at this time, he is of the opinion that the course followed was reasonable. While an earlier ECG would have preceded an Echo, that would then have required a discussion at a MDT where treatment options would be considered. Depending on the result of the Echo, surgery might have been an option. However, Archie was stable enough to be admitted to a ward, he was haemodynamically stable, did not have a raised temperature and had been started on broad spectrum antibiotics already. The delay in the ECG and plan for an Echo the following day were reasonable and did not contribute to Archie's demise.
65. In the opinion of Mr Stoica it was most likely that a vegetation from the aortic valve broke off and occluded some of the coronary circulation, shortly before terminal decline. This led to a catastrophic spread of microemboli in the coronary circulation and a rapid reduction of cardiac pump function culminating in cardiorespiratory arrest. On the hypothesis that an Echo had been performed in the afternoon of 19 November, followed by an MDT, it was unlikely to result in a different clinical result.

Discussion and conclusions

[21] Parties submitted lengthy submissions, referring to the applicable law, reviewing the evidence and suggesting findings which could be made depending on the view taken of the evidence. I am not repeating these submissions here but have taken all matters raised into account.

[22] It is agreed that the source of the bacterial infection is uncertain, but, for the avoidance of doubt, the source was not connected to Archie's attendances at the Royal Hospital for Sick Children, Glasgow.

[23] I was not invited to make any findings in respect of failures in any system of work which might have contributed to Archie's death by the Board or by Dr Maxwell. However, clinical staff did not follow the guidance or anticipatory care plan in place at the relevant times. Professor Coward acknowledged that the taking of blood cultures would have been a reasonable precaution having regard to the elevated CRP levels from 8 October onward. Evidence from Dr Connor suggests that the failures in system identified above may have resulted in blood cultures, identification of bacterial infection and subsequent treatment, thereby avoiding death. According to Dr Connor, the bacterial infection was most probably present no later than 5 November 2019. These failures were identified in the Significant Clinical Incident Investigation and appropriate recommendations were made and implemented.

[24] All parties accepted that the admission on 19 November and subsequent treatment fell below acceptable standards but were too remote from the cause of death

to form any recommendation. Again this was addressed in the Significant Clinical Incident Investigation with appropriate recommendations made and implemented.

[25] There were an unfortunate set of circumstances relating to Archie's admission on 5 November 2019 to the renal outpatient clinic. Blood test results were not usually available until after morning clinics had concluded and CRP levels usually later than others. Dr Maxwell had not seen the CRP levels. She did not see or sign the discharge letter containing the CRP level. No MDT meeting took place post clinic as neither the renal liaison nurse nor pharmacist were available. Blood test results would have been discussed had such a meeting taken place.

[26] Dr Maxwell candidly accepted she had failed to notice and to act upon the raised CRP level of 98mg/L recorded on 5 November 2019.

[27] The system for checking blood test results has changed. An electronic sign off system has been introduced requiring consultants to tick a box acknowledging they have seen and reviewed blood test results. This system should help prevent future instances of human error.

[28] It was accepted that, should I find that Archie's death could reasonably have been prevented if blood tests were ordered as a result of the elevated CRP on 5 November and investigated thereafter, then a finding under section 26(2)(e) should follow. As I was so satisfied, I have made the appropriate finding.

[29] I am grateful to all parties for the manner in which this Inquiry was conducted, with a great deal of evidence having been agreed. Naturally, with the passage of time,

witnesses recollection of events varied but all were doing their best to give evidence fairly and honestly.

[30] Finally, I would wish to express my condolences to Archie's family. Many family members sat through every day of the inquiry, which must have been difficult for them. His family had nursed Archie from birth through many hospital visits and cared for him very well. Archie was about to embark on another stage of his life with a kidney transplant planned in the near future, with a donation of a kidney from his father. The death of any child is a tragedy, but Archie's even more so.