SPSO Scottish Public Services Ombudsman

The Scottish Public Services Ombudsman Act 2002

Investigation Report

UNDER SECTION 15(1)(a)

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Scottish Parliament Region: South of Scotland

Case 201303932: Ayrshire and Arran NHS Board

Summary of Investigation

Category

Health: Hospital; clinical treatment and diagnosis

Overview

The complainant (Mr C) raised concerns about the treatment his late daughter (Ms A) received from Ayrshire and Arran NHS Board (the Board). Ms A had attended University Hospital Crosshouse (the Hospital)'s Emergency Department and was admitted, but sadly passed away a couple of days later. Mr C complained to my office about the clinical and nursing care his daughter had received and also the Board's handling of the complaint he and his wife (Mrs C) made to them.

Specific complaints and conclusions

The complaints which have been investigated are that the Board failed to:

(a) take appropriate steps to assess and treat Ms A's sepsis (*upheld*);
(b) provide appropriate nursing care for Ms A (*upheld*); and
(c) handle Mr C's complaint appropriately (*upheld*).

Redress and recommendations

The Ombudsman recommends that the Board:	*Completion date*
(i) review their protocols for identification of sepsis, identification of deteriorating patients and sepsis management and audit their performance using the Scottish Patient Safety Programme;	20 March 2015
(ii) reduce the time to consultant review for on-call teams managing critical illness, in line with the relevant Royal College of Physicians' Guidance;	20 March 2015
(iii) improve access to intensive care advice for on-call clinical teams;	20 March 2015
(iv) use this case in educational / mortality review meetings in the emergency department and medical units;	20 March 2015

(v)	ensure this case will be included in the consultants' next appraisal;	20 March 2015
(vi)	carry out a Significant Event Analysis, with reflective commentary, of the care and treatment provided to Ms A and the handling of Mr and Mrs C's complaint; and	20 March 2015
(vii)	apologise to Mr and Mrs C in writing for the failings identified in this report.	23 January 2015

The Board have accepted the recommendations and will act on them accordingly.

Main Investigation Report

Introduction

1. Ms A attended University Hospital Crosshouse (the Hospital)'s Emergency Department (ED) on the morning of 15 December 2012. She had been increasingly unwell in the preceding weeks and, on 15 December 2012, her symptoms included (among others) tiredness, weakness, high temperature and a reduced appetite. Her condition was consistent with a diagnosis of infection, possibly complicated by her pre-existing systemic lupus erythematosis (lupus). Ms A was given antibiotics in the ED before being admitted to the Hospital.

2. Ms A was seen by a consultant on 16 December 2012 and was given additional antibiotics with further blood tests requested. By 17 December 2012 Ms A still had a high fever and a rapid pulse and an opinion from a cardiology specialist was proposed, in case her condition was complicated by Ms A's pre-existing pulmonary hypertension. However, in the early hours of 18 December 2012 Ms A was increasingly breathless and tests at that time indicated she had a critical illness. Ms A suffered a cardiac arrest that morning when, sadly, efforts to resuscitate her were unsuccessful.

3. The complaints from Mr C which I have investigated are that Ayrshire and Arran NHS Board (the Board) failed to:

(a) take appropriate steps to assess and treat Ms A's sepsis;
(b) provide appropriate nursing care for Ms A; and
(c) handle Mr C's complaint appropriately.

Investigation

4. As part of the investigation all of the information provided by Mr C and the Board has been given careful consideration. This included the complaints correspondence and Ms A's relevant medical records. Independent clinical advice was also provided by:

- a consultant in respiratory and general internal medicine (Adviser 1);
- a consultant in emergency medicine (Adviser 2); and
- a senior nurse (Adviser 3).

5. I have taken this advice into account and, although I have not included in this report every detail investigated, I am satisfied that no matter of significance has been overlooked. Mr C and the Board were given an opportunity to comment on a draft of this report.

(a) The Board failed to take appropriate steps to assess and treat Ms A's sepsis

Mr and Mrs C's complaint to the Board

6. Mr and Mrs C outlined Ms A's symptoms when she attended the ED and her medical history. Mr and Mrs C's complaint said ED staff told Mrs C, following their initial assessment of Ms A, that they did not know how to treat Ms A's lupus.

7. Mr and Mrs C indicated that Ms A was in considerable discomfort while she waited over four hours on an ED trolley for a bed. They pointed to Ms A's increased distress and their concern about her pain and lack of treatment in this time as Ms A was not given the stronger painkillers she requested.

8. Mr and Mrs C explained that Ms A, having attended the ED early that morning (she was registered in the ED at 07:19), was admitted to a ward at around lunchtime on 15 December 2012 and her temperature was still raised that evening. They stated that when Ms A was transferred to another ward on 16 December 2012 her temperature remained high and her breathing was difficult. They also indicated that, when Ms A asked the nursing staff for a fan on 16 December 2012, she was told to open a window.

9. Mr and Mrs C said that Ms A was still struggling for breath on 17 December 2012 and that the nurse could not take Ms A's observations fully. They explained that the monitor the nurse used was different to the type used in the ED, which was problematic due to Ms A's raynaud's phenomenon. Mr and Mrs C were also unhappy at the way the nursing staff spoke to them and Ms A; when Mr and Mrs C asked for a fan for Ms A none was available, yet when Mr and Mrs C left that evening a fan was being used at the nursing station.

10. Mr and Mrs C stated that the Hospital telephoned them on 18 December 2012 and asked them to attend immediately but, when they arrived, staff told them that Ms A had died. They stated that a nurse said Ms A had wanted to call Mr and Mrs C in the early hours of that morning but had been told to wait until later that day. Mr and Mrs C explained that the consultant (Doctor 1) told them that further tests would have been done on 18 December 2012, while a nurse said Ms A's death had been a shock as they hadn't realised quite how ill she had been.

11. Mr and Mrs C asked why Ms A's sepsis was not diagnosed promptly, particularly as she had displayed some of its most common symptoms. They felt the Hospital had been too focussed on Ms A's pre-existing lupus and failed to show her appropriate consideration and understanding (they pointed to her fear of needles). They were concerned that Ms A was not given a fan to cool her, asked why she was given diazepam even with her underlying heart condition and why no specialist opinion about lupus was sought.

The Board's response

12. The Board expressed their condolences for Mr and Mrs C's loss. They explained that staff had not been fully aware of the deterioration in Ms A's condition, having placed emphasis on their initial assessment of her. The Board explained they had since reworded their staff guidance for the system used for identifying patients whose condition was worsening. This was to make it clear to staff that a patient may be sicker than is reflected by scoring system used.

13. They stated that when Ms A attended the ED she was given a detailed assessment by a doctor (Doctor 2). Doctor 2 felt Ms A's symptoms pointed to an infection, with her pre-existing lupus a possible factor. The Board indicated Ms A was given antibiotics and steroids and, following admission, the consultant (Doctor 3) noted on 16 December 2012 that she had responded well to her treatment. Doctor 3's differential diagnosis was either a septic episode or an acute flare up of lupus and she prescribed Ms A medication and arranged tests.

14. The Board said Doctor 2 remembered telling Mr and Mrs C that a rheumatologist was unavailable at that time (although a rheumatologist's opinion could have been arranged after admission). They passed on Doctor 2's apologies for not explaining this clearly enough, although they confirmed the suitability of Doctor 2's treatment. The Board apologised for the time Ms A's admission took (they work to a four hour target) and confirmed they were taking steps to address this. They also apologised that stronger pain relief was not considered for Ms A in this time.

15. The Board indicated that Ms A was very anxious and had a fear of needles. They said she was increasingly anxious in the early hours of 18 December 2012 and, when she sought a doctor, a nurse sat with her until a junior doctor arrived (Doctor 4). Although Doctor 4 suggested diazepam, it was not administered and 'other investigations were requested'.

16. They confirmed that Ms A's temperature had responded well to her antibiotics and a bedside fan was not always required (the Board indicated that Ms A preferred to keep the window open). However, they apologised that the fan used by the nursing station was not given to Ms A and confirmed that the complaint about the nursing staff's communication had been shared with them. The Board passed on their apologies.

Advice obtained: Adviser 1

17. Adviser 1 said that when Ms A attended the ED she had a temperature, a rapid pulse and her upper abdomen was tender. He confirmed Doctor 2 gave Ms A intravenous antibiotics, an increased dosage of her lupus medication (steroids) and medication to prevent blood clotting. Ms A was referred to the medical team for admission and on-going care.

18. Adviser 1 confirmed the blood tests indicated mild anaemia (among other things) and that the electrocardiogram (ECG) was consistent with pulmonary hypertension. The medical team's diagnosis was similar to Doctor 2's and made specific reference to a possible infection. Doctor 3 agreed with this analysis on 16 December 2012. Adviser 1 confirmed that Ms A was given additional medication and further blood tests were requested. Adviser 1 confirmed that primary pulmonary hypertension, 'where no cause can be identified, is a recognised albeit rare association with autoimmune diseases'.

19. Adviser 1 indicated that Ms A continued to have a high fever and rapid pulse on 17 December 2012. He said her raynaud's phenomenon made monitoring her oxygen saturation difficult and that a cardiology opinion was sought due to Ms A's pulmonary hypertension. Adviser 1 confirmed that Ms A was reviewed in the early hours of 18 December 2012 (she was increasingly breathless) and Doctor 4 gave her a 250 millilitre fluid challenge for her rapid pulse. He explained that although the clinical staff felt these symptoms stemmed from Ms A's anxiety, her blood gases were 'very abnormal', indicating a critical illness. He felt it was highly likely – in the absence of Ms A having either diabetes or kidney failure – this blood test abnormality resulted from sepsis. Adviser 1 confirmed that some minor changes were made to Ms A's treatment with fluids (but not her overall treatment) and that she died from a cardiac arrest later that morning.

20. Although he explained this had been an unusual, difficult and challenging case for the clinical staff, Adviser 1 pointed to the following shortcomings after Ms A was admitted:

- the records do not reflect Ms A's pre-existing lupus and its treatment as being risk factors for severe infection;
- the records do not indicate the effect of Ms A's pulmonary hypertension was considered in terms of how her heart's limited ability to increase its output could adapt to severe sepsis. He explained this was 'a factor that indicated the need for very careful monitoring, and in particular care in a high dependency setting';
- the records do not reflect that either Ms A's hypogammaglobulinaemia or low blood lymphocyte levels were considered as risk factors;
- the records do not indicate that blood cultures were done before Ms A was given antibiotics or that a blood lactate level was then done, 'at variance to the 'sepsis six'[1] standards and a serious shortcoming';
- the records do not indicate that Ms A's low blood albumin level, which 'was an indicator that she was severely and chronically unwell', was recognised or considered appropriately; and
- the records did not detail that Ms A's anxiety may have been due to her lupus, in addition to the fact that metabolic acidosis can cause over-breathing and, therefore, possible breathlessness. He indicated that blood gases, or at the very least a blood lactate level, should have been done when Ms A complained of breathlessness.

21. The matter's complexity notwithstanding, Adviser 1 considered these shortcomings meant Ms A's care fell below a reasonable standard. Although the Hospital had recognised sepsis as probable from Ms A's admission and some appropriate actions were taken, there were also omissions.

22. Adviser 1 also explained that the records reflected Doctor 4's intention to give Ms A a small dose of diazepam in the early hours of 18 December 2012. He could not confirm if it had been administered - the Board said it was not – and he explained that, although Ms A's pulmonary hypertension was not a contraindication, this was inappropriate 'for a patient who had life-threatening metabolic acidosis' and the decision to prescribe diazepam reflected 'an incomplete clinical assessment'.

[1] http://survivesepsis.org/the-sepsis-six/

23. Adviser 1 had concerns with the steps taken in the early hours of 18 December 2012. He questioned the initial assumption that Ms A's agitation and breathlessness were due to anxiety exacerbated by her lupus, pulmonary hypertension, fever, very rapid pulse and the inability to measure oxygen saturation. He said that a difficult clinical situation was made more challenging by Ms A's fear of needles, which caused her to initially refuse crucial arterial blood gases. The crucial nature of this test was shown by the 'critical abnormalities' detailed when blood gases were done later which should have prompted senior clinical involvement.

24. Adviser 1 considered the steps taken at 04:30 on 18 December 2012 by the junior doctor (Doctor 5) in response to Ms A's 'life-threatening metabolic acidosis' were unreasonable. He confirmed that Ms A should have been transferred promptly to the intensive care unit and a discussion with the on-call consultant about any necessary additional steps should have taken place at the time.

Advice obtained: Adviser 2

25. Adviser 2 explained that Ms A was triaged appropriately in the ED on 15 December 2012 and was then seen promptly (despite an apparent 30 minute delay between Ms A registering in the ED and being triaged). He felt Doctor 2 recorded a reasonable assessment and carried out reasonable investigations.

26. However, he said Ms A's increased heart and respiratory rates, in the context of Doctor 2 suspecting an infection, suggested sepsis (a condition with greater severity than 'infection'). Adviser 2 explained that people with lupus are predisposed to infection and, although Doctor 2 took a blood sample and gave Ms A antibiotics, not measuring Ms A's blood lactate level was a shortcoming.

27. Adviser 2 explained that, had a blood lactate been done and the reading was above a certain level, this would have indicated that Ms A had severe sepsis. He indicated that failure to take a blood lactate level for Ms A was a shortcoming.

28. If Ms A had severe sepsis then a series of actions – the 'sepsis six' – should have been undertaken in the ED within the first hour. However, this was only partially done; the records did not indicate Ms A was given high flow oxygen, that her blood lactate level was measured, that she was given intravenous fluids or a urinary catheter was inserted. Adviser 2 also said

established good practice would have been for more frequent observations of her pulse, temperature and blood pressure (minimum every 30 minutes). He explained that Ms A should have been reviewed by a more senior doctor in the ED and referred for an intensive care medicine opinion.

29. Adviser 2 explained that he could not be certain what an intensive care medicine opinion would have been at that point. However, had Ms A's blood lactate been at a high level this early in her admission it would have indicated severe sepsis and necessitated a high dependency / intensive care admission.

30. Adviser 2 indicated that Ms A required monitoring and a greater level of observations than she received in the ED. Although he did not feel it was clear that Ms A would have had a better outcome if she had been transferred from the ED to a ward more promptly, he felt her remaining in the ED for several hours without either more senior or critical care review reflected an underestimation of the seriousness of her condition. He explained that although the admitting junior doctor (Doctor 6) discussed Ms A with a consultant by telephone on the evening of 15 December 2012, the records indicated that she first saw Doctor 3 at 12:30 on 16 December 2012. This was around 24 hours after Ms A's admission.

31. In summary, Adviser 2 felt there were several shortcomings in Ms A's care within the ED, particularly the failure to measure her blood lactate level as part of the 'sepsis six' series of actions. He pointed to Ms A not being seen by a suitably senior doctor in the ED, her prolonged stay on a trolley seemingly exacerbating her pain, her not being referred for a possible admission to either the intensive care or high dependency units and the fact that her vital signs were not monitored appropriately or frequently enough.

(a) Conclusion

32. Adviser 1 explained that Ms A had been very unwell at the time of admission and had an unusual combination of symptoms. He confirmed how challenging this case had been for the clinical staff and I have taken that into account.

33. The Board's response to Mr and Mrs C's complaint stated that, following Ms A's initial assessment, sepsis was identified as a probable cause of her illness and was 'treated appropriately'. However, the advice I have received from Adviser 1 and Adviser 2 clearly outlines a series of shortcomings in Ms A's

care. Viewed as a whole, I do not consider the evidence indicates the Board took appropriate steps to assess and treat Ms A's sepsis. I uphold this complaint.

(a) Recommendations

34. I recommend that the Board:	*Completion date*
(i) review their protocols for identification of sepsis, identification of deteriorating patients and sepsis management and audit their performance using the Scottish Patient Safety Programme;	20 March 2015
(ii) reduce the time to consultant review for on-call teams managing critical illness, in line with the relevant Royal College of Physicians' Guidance;	20 March 2015
(iii) improve access to intensive care advice for on-call clinical teams;	20 March 2015
(iv) use this case in educational / mortality review meetings in the emergency department and medical units; and	20 March 2015
(v) ensure this case will be included in the consultants' next appraisal.	20 March 2015

(b) The Board failed to provide appropriate nursing care for Ms A

Advice received: Adviser 3

35. Adviser 3 pointed to the challenges of managing bed capacity, particularly in the winter. However, she confirmed that the Board's aim of ensuring admission to a ward within four hours of arrival was not met for Ms A. She said it would have been established good practice for Ms A to have been assisted in changing position for comfort on the ED trolley while awaiting a bed, but there was no record of either pain relief or such assistance being given (despite Ms A having been too weak to have done so herself). Adviser 3 confirmed the records indicated that Ms A's pain was monitored and she was given pain relief after she was admitted.

36. Adviser 3 stated that if Ms A requested a fan and one were available then it should have been provided. She explained that nursing staff should 'provide

a high standard of practice and care at all times'[2] and, if a fan were not available for Ms A, it was unreasonable for nursing staff to have used one.

37. She explained that nursing staff must have 'the knowledge and skills for safe and effective practice when working without direct supervision'.[3] Adviser 3 explained that, at 16:00 on 17 December 2012, Ms A had a raised temperature and heart rate. Ms A was seen by a junior doctor (Doctor 7) at 16:10 and an advanced nurse practitioner at 17:20, although neither Doctor 7 nor the advanced nurse practitioner detailed the necessary frequency of observations of Ms A.

38. Adviser 3 explained that oximeters measure oxygenation, not ventilation (this would require arterial blood gases). However, raynaud's phenomenon - which Ms A had - can make this unreliable. She stated that, given the importance of these observations and that Ms A's oxygen saturation was not recordable at that time, half hourly observations would have been established good practice. However, the next set of observations was at 21:30, at which point Ms A's temperature and heart rate had decreased. Adviser 3 said that the true picture of Ms A's status was incomplete due to her 'continued unobtainable oxygen saturation levels and lack of arterial blood gases'.

39. She explained that the advanced nurse practitioner considered the need for blood gases but Ms A refused. Although Adviser 3 acknowledged a patient may decline such an investigation, she also said there was no evidence that Ms A was encouraged to have blood gases taken; Adviser 3 found this surprising, given that Ms A was easily persuaded to do so on 18 December 2012 when a nurse stayed with her. Although Adviser 3 explained that the advanced nurse practitioner had discussed Ms A's on-going management with a senior house officer, she felt more senior support – including possible critical care input - should have been sought.

40. Finally, Adviser 3 stated that the records did not indicate that Ms A was asked to wait until later before calling her parents on 18 December 2012. She confirmed that the advanced nurse practitioner contacted Mr and Mrs C when resuscitation was attempted later that morning.

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[2] 'The code: Standards of conduct, performance and ethics for nurses and midwives' at page 2 (available at http://www.nmc-uk.org/Publications/Standards/The-code/Introduction/)
[3] 'The code: Standards of conduct, performance and ethics for nurses and midwives' at page 6 (available at http://www.nmc-uk.org/Publications/Standards/The-code/Introduction/)

(b) Conclusion

41. I recognise the Board will face challenges in trying to ensure that 95 percent of patients are admitted to a ward within four hours of arrival. However, I consider Ms A's pain and discomfort while she awaited admission to be significant, particularly as she was neither administered pain relief nor assisted in changing position on her trolley within the ED.

42. Upon Ms A's admission, I consider it clear that a fan being used by nursing staff should have been made available to Ms A upon her request. The Board's response to Mr and Mrs C's complaint stated that they could not understand 'why a nurse would not provide a fan for a patient when it was available'.

43. I have also taken account of the advice I received that the observations of 17 December 2012 meant Ms A's true picture was incomplete. Taken as a whole, I consider the evidence available to me indicates that the Board failed to provide appropriate nursing care for Ms A. I uphold this complaint and I have made additional recommendations as the end of this report.

(c) The Board failed to handle Mr C's complaint appropriately

44. The Board received Mr and Mrs C's complaint on 1 August 2013 and issued their formal response on 21 November 2013.

45. The chief executive personally acknowledged Mr and Mrs C's complaint on 2 August 2013 and offered his condolences, while the Board contacted Mr and Mrs C on 6 August 2013 to confirm the matters they would be investigating. The Board's subsequent letter of 29 August 2013 explained that, due to the complaint's complexity, the investigation was taking longer than expected. They also said they would like to meet with Mr and Mrs C after their internal review had concluded.

46. The Board's complaint file indicates that they had contacted Mr and Mrs C by 26 September 2013 to explain that their internal review had caused the continued delay. The review took place on 26 September 2013 and the file indicates the Board then spoke with Mr C on 8 October 2013. They confirmed they had held their review although Mr C declined the Board's offer to meet; the Board told Mr C they aimed to send their formal response within two weeks.

47. Mrs C left a voicemail message on 31 October 2013 asking for the Board's formal response and, when the Board contacted Mr C later that day, he outlined his dissatisfaction at the delay. The Board said they had to finalise some minor outstanding points with their investigation and they hoped to be in a position to send their formal response to Mr and Mrs C the next week.

48. The Board telephoned Mr and Mrs C on 5 November 2013 and left a message for them to call back, at which point the Board explained that their response was yet to be finalised. They emailed Mr and Mrs C on 11 November 2013 and confirmed that the letter awaited internal approval, although they would be in touch on 13 November 2013 to hopefully provide Mr and Mrs C with a date for their formal response.

49. On 14 November 2013 Mr and Mrs C emailed the Board and also sent a copy of a postcard my Advice & Outreach Team had given them, after they contacted my office.[4] Mr and Mrs C outlined their frustration at the delay - particularly as they had agreed to each extension so far – and they felt the Board had not handled their complaint proactively.

50. The Board responded that day to say their draft response had been amended and awaited approval. They apologised for not having contacted Mr and Mrs C on 13 November 2013, which was due to a staff member unexpectedly being out of the office. They explained that the draft had been prepared and awaited final sign off, but if this was not forthcoming they would telephone Mr and Mrs C to let them know. The Board also spoke with Mr and Mrs C that day and followed up by email on 15 November 2013.

51. Mr C emailed the Board on 20 November 2013 and pointed to the fact that almost four months had passed – as well as him having been told around seven weeks ago that he could expect a response within two weeks – and the Board's response was not yet issued. He highlighted Ms A's approaching anniversary and how difficult a matter this was for Mr and Mrs C.

52. The Board issued their formal response to the complaint on 21 November 2013, which apologised for their delay in responding and

[4] This postcard is for members of the public who await a complaint response from an organisation under my jurisdiction but the standard timescale has passed. It lets the organisation know my office has been contacted and invites the individual to contact us again if the response is not forthcoming within a fortnight.

explained this was due to their internal investigation taking longer than expected.

(c) Conclusion

53. The Board should acknowledge written complaints within three working days and aim to resolve most within 20 working days. They may, on occasion, be unable to meet the 20 working day timescale but they should keep people informed of progress within this timescale. It is clear that the Board acknowledged Mr and Mrs C's complaint promptly but their formal response significantly exceeded 20 working days.

54. I also consider it clear that this was a complicated and significant matter that required a detailed investigation by the Board. Of itself, I do not consider it unreasonable that their investigation took longer than twenty working days. The Board's letter of 29 August 2013, sent within this timescale, referred to this complexity and said the investigation was taking longer than anticipated. It also said an internal review was being done and a meeting could then be held with Mr and Mrs C. I recognise that input was required from a number of the Board's staff members and the challenges of coordinating and issuing such a response promptly.

55. Equally, although the evidence indicates there was contact between the Board and Mr and Mrs C during the investigation, it also indicates the Board told Mr and Mrs C on 8 October 2013 that they could expect their formal response within two weeks. The next communication appears to have been when Mrs C contacted the Board on 31 October 2013.

56. The evidence indicates that Mr and Mrs C felt – despite the Board's background investigation into their complaint - they were driving matters forward and effectively had to pursue the Board. Although I have acknowledged the complaint's complexity, I have also considered matters from Mr and Mrs C's perspective; having lost their daughter and raised concerns about her care and treatment, their feeling that they had to repeatedly take the initiative with the Board did little to reassure them that their concerns were being addressed with reasonable transparency and efficiency in all the circumstances. I consider it unreasonable for Mr and Mrs C to have been in a position where they felt the matter was not being handled proactively and that they had to push for the Board's response. I uphold this complaint.

General Recommendations

57. I recommend that the Board:	*Completion date*
(i) carry out a Significant Event Analysis, with reflective commentary, of the care and treatment provided to Ms A and the handling of Mr and Mrs C's complaint; and	20 March 2015
(ii) apologise to Mr and Mrs C in writing for the failings identified in this report.	23 January 2015

58. The Board have accepted the recommendations and will act on them accordingly. The Ombudsman asks that the Board notify him when the recommendations have been implemented.

Annex 1

Explanation of abbreviations used

Ms A	Mr and Mrs C's late daughter
the Hospital	University Hospital Crosshouse
ED	the Emergency Department at the Hospital
Mr C	the complainant
the Board	Ayrshire and Arran NHS Board
Adviser 1	a consultant in respiratory and general internal medicine
Adviser 2	a consultant in emergency medicine
Adviser 3	a senior nurse
Doctor 1	a consultant at the Hospital
Doctor 2	a doctor in the Hospital's Emergency Department
Doctor 3	a consultant at the Hospital
Doctor 4	a junior doctor at the Hospital
Doctor 5	a junior doctor at the Hospital
Doctor 6	the admitting doctor at the Hospital
Doctor 7	a junior doctor at the Hospital

Annex 2

Glossary of terms

anaemia	a condition where the blood has a reduced number of red blood cells (these cells are responsible for carrying oxygen in the blood)
arterial gases	blood taken from an artery to assist doctors make a diagnosis by providing information on oxygenation, ventilation and blood acidity
blood albumin level	this is the amount of an important protein that is present in the blood. A low level may indicate a problem with the liver or kidneys
blood cultures	this is used to check for infections in blood (blood samples are taken and passed to the laboratory to grow bacteria)
blood gases	these are tested to check how well a person's lungs are working
blood lactate level	this refers to the possibility of the blood becoming too acidic and may result from reduced oxygen levels or infection
contraindication	something that makes taking a particular step – for example a particular treatment – inadvisable in the circumstances
diazepam	a medicine used to treat anxiety
differential diagnosis	a systematic method of diagnosing a disorder that lacks unique symptoms or signs
electrocardiogram (ECG)	a test that records the electrical activity of the heart

fluid challenge	this is a process where a patient is given a small amount of fluid via a vein in a short time, to assist a doctor assess the heart
hypogammaglobulinaemia	this abnormality of the immune system means that a person is more likely to suffer infections
intensive care medicine	the area of medical practice that addresses life threatening illnesses
lupus	an autoimmune condition that can damage organs such as, among others, the kidneys and skin
lymphocyte	a white blood cell involved in the body's immune response to infection
medical team	the medical staff responsible for admission and on-going care after ED, usually in an admissions ward, where all patients admitted go initially. This team consists of a few junior doctors in the hospital and on call consultant staff, who are often at home out-of-hours
metabolic acidosis	where the body is producing too much acid, such as in severe infection
oximeter	a piece of equipment that is used for measuring a person's oxygen saturation (see below), usually via a probe attached to the finger
oxygenation / oxygen saturation	a way of measuring the amount of oxygen in a person's blood
pulmonary hypertension	raised pressure in the blood vessels that supply the lungs

raynaud's phenomenon	a common condition that affects the circulation of blood (usually the fingers and toes)
respiratory rate	number of breaths recorded per minute
rheumatologist	a doctor who specialises in conditions which can affect, for example, joints, bones and internal organs
sepsis	Infection, which can range from mild to severe. When this is very severe it is called septic shock as the body's systems and blood pressure become affected
triage	the process of deciding which patients should be treated first based on how sick or seriously injured they are
ventilation	the process of moving air in and out of the lungs (whether by breathing normally or through assistance from a machine)