SHERIFFDOM OF TAYSIDE, CENTRAL AND FIFE AT ALLOA

[2017] FAI 17

DETERMINATION

BY

SHERIFF S G COLLINS QC

UNDER THE FATAL ACCIDENTS AND SUDDEN DEATHS INQUIRIES (SCOTLAND) ACT 1976

into the death of

DEREK ADAM

Alloa, 1 September 2017

The Sheriff, having considered all the evidence adduced, **DETERMINES**, in terms of the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976, s.6(1):

(1) That the late Derek Adam, born 20 July 1969, residing care of HM Prison Glenochil, was pronounced dead at 03.32 on 15 September 2013, at Forth Valley Royal Hospital, Larbert;

(2) That the cause of death was coronary artery atherosclerosis;

(3) That the following were reasonable precautions whereby the death might have been avoided:

a. Automated external defibrillators could have been made readily accessible for use by prison officers on night shift in HM Prison, Glenochil; and

b. Prison officers on night shift at HM Prison Glenochil could have been given

training and instruction in relation to when and how to use an automated external defibrilator.

(4) That there were no defects in a system of working which contributed to the death:

(5) That other facts relevant to the circumstances of the death are as found and further discussed below.

FINDINGS IN FACT

Background

1. The deceased is Derek Adam, whose date of birth was 20 July 1969.

2. On 20 January 2011 Mr Adam pled guilty at Aberdeen High Court to three charges of lewd, indecent and libidinous practices and behaviour. Ultimately, following an appeal, his sentence was one of nine years imprisonment. His earliest date of release was 19 January 2017.

3. In August and September 2013 Mr Adam, then 44 years of age, was imprisoned at HM Prison Glenochil, King O' Muir Road, Tullibody, Clackmananshire ("Glenochil").

4. At this time Mr Adam was a smoker, and was overweight, having a Body Mass Index of 32. He suffered from sciatica, and was in receipt of prescriptions for omeprazole (an antacid), amoxicillin (an antibiotic), mirtazapine (an anti-depressant) and co-codamol and nefopam (analgesics). However he had no known cardiac health conditions and no medical history of such conditions.

23 – 26 August 2013: Mr Adam's admission to Forth Valley Royal Hospital

5. At around 09.50 on 23 August 2013, while working in the prison garden, Mr Adam complained of chest pain with associated sweating and shortage of breath. Nurses then on duty within the prison were called for at 10.00, and attended on him at 10.02. Mr Adam's symptoms had eased by 10.07 and gone completely by 10.08, by which time he was able to walk around freely with no pain. He was advised to rest and contact the prison health centre if the pain returned.

6. Throughout the night of 23 to 24 August 2013 Mr Adam experienced non acute pains in the left side of his chest and shoulder. From around 08.00 in the morning of 24 August 2013 he experienced crushing pains across his chest and his left arm felt cold and numb. At 08.40 an emergency call was made to nursing staff, then on a medication round in the prison, who immediately attended on Mr Adam in his cell. On examination he was found to have high blood pressure and a fast pulse rate. He was given 300 mg of aspirin. A blue light ambulance was called for at 08.46. Mr Adam's chest pains abated, and he had no obvious shortage of breath. By 08.48 his blood pressure and pulse rate had lowered slightly. Paramedics arrived at Mr Adam's cell at 08.55.

7. Although slightly abated, Mr Adam's symptoms were suggestive of an adverse cardiac event. In particular central chest pain radiating down the left arm, or associated with coldness or numbness in the left arm, is classically experienced by persons experiencing a cardiac arrest, even if not diagnostic of such an event.

Mr Adam was accordingly taken by the paramedics to Forth Valley Royal Hospital in Larbert ("FVRH") for further assessment.

8. Mr Adam arrived at the accident and emergency department of FVRH at around 9.50 on 24 August 2013. He was examined by Dr Ian Tuck, an A&E consultant. Dr Tuck listened to his heart, chest and lungs and examined him for peripheral oedema. Mr Adam was found to be alert and pain free, and his condition did not give Dr Tuck any immediate cause for concern.

9. Whilst in accident and emergency Mr Adam was given an electrocardiogram test ("ECG"). This showed sinus rhythm, that is, normal electrical activity in Mr Adam's heart, albeit with a slight or shallow T wave inversion. A significant T wave inversion points towards ischemia, that is, a lack of blood and oxygen reaching the heart, but this was not shown to be present in Mr Adam's case. Mr Adam was also given a troponin test by Dr Tuck. Troponin is a protein found in the heart. If the heart is damaged, as typically occurs during a cardiac arrest, troponin leaks out into the bloodstream and can be detected by testing. In Mr Adam's case the troponin reading was found to be less than 50, which is negative or normal, and accordingly was not indicative of a cardiac arrest having occurred.

10. Notwithstanding these test results, Dr Tuck remained concerned to exclude Mr Adam's pain as having a cardiac origin. He therefore admitted him to FVRH for further assessment. In particular, and in accordance with recognised practice, Mr Adam was admitted because it was appropriate to repeat the troponin test

around twelve hours after the time of the onset of his presenting pain. That is because there can be a delay in the release of troponin following a cardiac event, for example, if there is only a relatively small amount of damage to the heart, in which case it might take some time before it becomes detectable.

11. Following admission, Mr Adam was placed under the care of Dr Douglas Morrison, a consultant in general and respiratory medicine. A second troponin test was carried out on Mr Adam at around 22.10 on 24 August 2013. It too showed a reading of less than 50, this being a normal reading which was not indicative of a cardiac arrest having occurred. A further ECG test was also carried out the same evening, and again this showed normal sinus rhythm of the heart with the T waves only slightly inverted.

12. Mr Adam remained in FVRH on the night of 24 to 25 August 2013. In the light of the results of the ECG and troponin tests, and the absence of any further symptoms, he was discharged back to Glenochil around midday on 25 August 2013. However arrangements were made for Mr Adam to later return to FVRH for a Bruce Protocol exercise tolerance test ("ETT").

13. An ETT involves requiring a patient to walk on a treadmill while progressively increasing its speed and incline according to a set protocol while monitoring heart activity. It is a stress test intended to reveal problems with cardiac function, for example, problems with blood supply to the heart such as occur in angina or other ischemic heart diseases not necessarily resulting in a cardiac arrest. The test is both diagnostic, in seeking to exclude ischemic heart disease as

a cause for reported symptoms, and prognostic, in assessing whether the patient is likely in the future to come to any harm from cardiac disease.

14. Mr Adam returned to LVRH on 26 August 2013 and was subject to an ETT. He was also subject to further ECG testing before and during the ETT, which continued to show slight T wave inversion. However there was no dynamic change in this test result from the results obtained in the ECG tests carried out on 24 August 2013. In the ETT itself, Mr Adam managed 9 minutes of the Bruce Protocol on the treadmill. He achieved 86% of target heart rate with good blood pressure response to exercise. The test was stopped due to back pain and fatigue. Mr Adam experienced no chest pain or shortness of breath. In short, the ETT was negative for the presence of heart disease.

15. In the case of a patient such as Mr Adam where there is no ongoing chest pain, the troponin test is normal at twelve hours, repeated ECG testing shows no dynamic changes, and ETT testing is properly performed with negative results, the probability of an adverse cardiac issue (such as thrombosis secondary to coronary artery atherosclerosis) occurring within a reasonable time thereafter, and in any event within a few weeks, is very low. A recent peer reviewed study has placed the probability at around 0.2%. In other words, prognostically, the testing to which Mr Adam was subjected was as close to 100% accurate as most medical tests can get.

16. Accordingly, and in the light of all the test results, Mr Adam was again discharged back to Glenochil, with no follow up appointment stipulated.

10 September 2013: Mr Adam's self referral

17. On 10 September 2013 Mr Adam self-referred to nursing staff in Glenochil, complaining of having persistent coldness in his left arm. This was a routine, rather than an emergency self-referral. Mr Adam had previously made an emergency self-referral in relation to an unrelated ailment. He was therefore aware that it would have been open to him to have made an emergency referral on this occasion.

18. Mr Adam's referral form was received by the duty nurse Fiona McAinsh. She checked his medical notes, in particular those relating to his admission to FVRH on 24 August 2013. She noted the results of the various tests carried out at that which had indicated no cardiac abnormality. In the light of this Ms McAinsh considered that there was no immediate cause for concern in relation to the referral and responded to it by listing Mr Adam for a routine GP appointment. This appointment had not taken place by the time of Mr Adam's death.

The events of 15 September 2013: the prison officers' initial response

19. In the early morning of 15 September 2013 Mr Adam was in his cell at Glenochil. It was a single cell on the top floor of Abercrombie Hall, number 5/45. Mr Adam occupied it by himself. At around 01.00 he again began to experience chest pains together with a chill in his left arm. At around 01.16 he activated the intercom in his cell and spoke to prison officer Derek Jackson. Mr Jackson attended at Mr

Adam's cell along with prison officer Martin Saunders. They spoke to him through the spyhole. Mr Adam told the officers that he had chest pains and was feeling unwell. He was lucid, not ashen in appearance, and not short of breath.

20. Mr Jackson and Mr Saunders were two of nine prison officers on duty at Glenochil on the night shift of 14 to 15 September 2013. The first line manager in charge of the nightshift was Mr Alan Smith.

21. At around 01.20 Mr Jackson telephoned Mr Smith, to tell him of Mr Adam's complaint. Mr Smith went to Mr Adam's cell along with prison officers Jim Shaw and Iain Hill. Mr Saunders and Mr Jackson were still present in the hall. Mr Smith arrived at Mr Adam's cell around 01.30. He and Mr Saunders entered the cell and spoke to Mr Adam who was sitting fully clothed in his chair.

22. Mr Adam told Mr Smith of his symptoms as earlier described to Mr Jackson and Mr Saunders. He told him a summary of the circumstances of his admission to FVRH on 24 August 2013, and that he'd been told at that time that he might have had a minor heart attack. He told them that his chest pain had been 6, on a scale of 1 to 10, but had subsided considerably and that he was starting to feel better. He was speaking lucidly and did not appear to the officers to be in real distress. Given the circumstances, however, Mr Smith felt that he wanted to get further medical advice and told Mr Adam that he would telephone the doctor. Mr Adam expressed himself as content with that.

Medical and nursing cover at Glenochil

23. Following reviews in 2003 and 2004 the Scottish Prison Service ("SPS") decided to close in-patient medical facilities in all Scottish public sector prisons, and to transfer responsibility for prisoners' health care to the NHS. SPS considered that the health needs of prisoners did not justify in-patient facilities, that these facilities were being inappropriately used, that in-patient stays were inappropriately lengthy, and that more effective use of resources elsewhere could result in a service that better met health care needs of all prisoners. The closure of the in-patient facilities removed the immediate operational necessity for medical and nursing staff to be present within prisons overnight. SPS therefore decided that henceforth there would be no overnight medical or nursing staff in Scottish public sector prisons. SPS considered that this would provide a model of health care for prisoners overnight which was the equivalent of that which exists for patients in the community. These changes took effect from 2011.

24. As at September 2013, therefore, qualified nursing staff were on duty at Glenochil every day, throughout the day, until around 21.00 during the week and 19.00 at weekends. They worked from a dedicated health centre located in the prison. Pursuant to the policy decision mentioned above, however, there were no nurses on duty at Glenochil during the night shift, and the health centre was locked.

25. A qualified general medical practitioner, Dr Michael Blackmore, worked from

Glenochil four days per week, in addition to performing a portfolio of other GP work in Grangemouth and elsewhere. He had worked at Glenochil since 2011, and was the clinical lead practitioner for substance misuse. Otherwise his work at the prison covered the normal areas of general medical practice. If a prisoner wished to see Dr Blackmore they would normally complete a referral form. During the day, these would be triaged by the nurse on duty. If the referral was thought to require his urgent attention, Dr Blackmore would hope to see the prisoner the same day. If it was not thought urgent, then an appointment would be made to see him within a few days.

26. Dr Blackmore was also part of a 'one in four' rota of GPs for out of hours calls, covering not only Glenochil but also HM Prison Cornton Vale and HM Young Offenders Institution Polmont. At the time there were around 650 prisoners in Glenochil and around 200 in each of Cornton Vale and Polmont. Dr Blackmore was on call every Wednesday night and one weekend in four. Out of hours calls to Dr Blackmore could in theory have come from any prison officer on the nightshift, but in practice would normally come through the night shift supervisor. Typically Dr Blackmore's out of hours call out rate for the three prisons covered by him would vary between zero and three calls per month. Typically it would take Dr Blackmore tens of minutes to attend at Glenochil after receiving an out of hours call from the prison.

27. There were no on-call nurses at night for Glenochil, whether during the week or at weekends.

28. Both Dr Blackmore and the nursing staff working in Glenochil during the day were employed directly by the National Health Service and not by SPS.

Dr Blackmore's response

29. In these circumstances, in order to obtain further medical advice regarding Mr Adam on the night of 15 September 2013, Mr Smith returned from the cell to his office, and at around 01.40 he telephoned Dr Blackmore. He told him what had happened. Mr Adam was already known to Dr Blackmore. He had previously treated him in relation to stomach problems and sciatica. He was aware that Mr Adam had been admitted to FVRH with chest pain on 24 August 2013. He had not met with Mr Adam since that admission but had seen the hospital discharge letter and was aware of the results of the testing that had been carried out.

30. Mainly based on the information provided by Mr Smith – in particular that Mr Adam's symptoms appeared to be improving – Dr Blackmore did not consider that there was an emergency justifying calling an ambulance at that point. However he was sufficiently concerned to come in to the prison to see Mr Adam, and indicated to Mr Smith that he would do so shortly.

Mr Adam's collapse

31. Mr Smith then returned to Mr Adam's cell, arriving there around 01.55. The cell door was closed. Mr Saunders and Mr Jackson were still in attendance. Prison officers Hill and Shaw were also now in the vicinity. Mr Smith looked through

the spyhole. He saw Mr Adam sitting in his chair and his head was back. Mr Smith and Mr Saunders entered the cell. They spoke to Mr Adam but got no response. He was unconscious. The officers did not attempt to detect a pulse. This was because they thought that Mr Adam was still breathing, as he was making gurgling, breathing like sounds. However Mr Adam was in ventricular fibrillation, and had entered this condition at the time when he lost consciousness. The breathing like sounds heard by the officers were agonal breathing.

Ventricular fibrillation, agonal breathing, CPR and defibrillation

32. Ventricular fibrillation means that the heart is quivering rather than pumping blood due to disorganized electrical activity in the ventricular muscles. It is a form of cardiac arrhythmia. It results in loss of consciousness and no pulse. It can be distinguished from pulse-less electrical activity, where conductivity in the heart is normal but it is not pumping, and asystole, where there is neither electrical activity nor pumping.

33. Agonal breathing is not normal breathing. It is a brain stem reflex which occurs when the vital organs of the body are being starved of oxygen, such as occurs when a patient is in ventricular fibrillation. It is gasping, dying breaths. To the untrained observer it may appear that the patient is still breathing normally. Agonal breathing will not start until after the heart has stopped pumping. It may continue for several seconds or for several minutes thereafter, but this will

vary from case to case. The pre-morbid condition of the individual is important: the younger and fitter they are, the longer may be the period for which agonal breathing occurs. Mr Adam's age and condition were consistent with him breathing agonally for several minutes.

34. Treatment of ventricular fibrillation is principally by a combination of cardio pulmonary resuscitation ("CPR") and defibrillation. Drugs, in particular adrenalin, may also be administered by those authorized to do so, that is, by qualified doctors and paramedics. The aim of treatment is to restore the heart to a normal rhythm such that it will resume pumping of oxygenated blood around the body. It this is not done death will inevitably occur within a very short time, as the body's vital organs will become progressively starved of oxygen.

35. CPR primarily involves compressing the patient's chest, by repeating cycles of 30 compressions at the rate of about twice per second, with a view to partially restoring the flow of oxygenated blood to the brain and heart. Ideally this would be combined with rescue breathing ('mouth to mouth resuscitation') in an attempt to force air into the patient's lungs (at the rate of two rescue breaths for every 30 compressions). In itself, CPR is unlikely to restore normal sinus rhythm to the heart of a person in ventricular fibrillation. Its primary purpose is to keep the patient alive by delaying the onset of irreversible brain damage caused by oxygen starvation – in other words 'buying time' for the patient in which to carry out successful defibrillation.

36. Rescue breathing is not essential to effective CPR by way of chest compression,

but may in some cases contribute slightly to its effectiveness, and thus the length of the period of time within which the patient's life may be saved by restoration of normal heart rhythm through defibrillation. Accordingly if rescue breathing can be done in addition to chest compressions, it should be.

37. Rescue breathing can be carried out by direct mouth to mouth contact with the patient. However such contact involves a risk of transfer of infectious disease. In the absence of knowledge of his medical history it is not reasonable to expect prison officers to have direct mouth to mouth contact with a prisoner if required to carry out CPR on him. The requirement to have direct contact can however be removed by the use of a resusciade. This is a plastic tube with a one-way valve which can be inserted into the patient's mouth. It was, and is, a relatively cheap and widely available item.

38. Defibrillation is achieved by use of a defibrillator. A defibrillator is a device that delivers a high energy electric shock to the heart through the chest wall. The purpose of administering such a shock is not to restart a heart that has stopped. It is to stop a heart which is in dysrhythmia due to ventricular fibrillation, in the hope that its natural pacemaker will then re-establish a normal sinus rhythm. Defibrillation is therefore not appropriate where the heart has stopped completely, such as where the patient is in pulseless electrical activity or asystole.

39. Automated external defibrillators ("AEDs") are designed for use by non-medically trained persons, with little or no training. They have been available for many years. They are now mass produced, relatively cheap, and widely

located in public and work places for use in cardiac emergencies. They are designed to be 'idiot proof'. Applied to the patient an AED will automatically detect whether he or she has a heart rhythm which is shock-able. If no such rhythm is detected, the AED will not administer a shock. Application of an AED accordingly removes any need to try to detect a pulse. Some AEDs will automatically administer a shock; others require a button to be pressed. There is minimal risk from use, to either the patient or the person using the AED.

40. When a person enters ventricular fibrillation, this can be immediately detected and defibrillation carried out – for example, where the person is already being monitored in a hospital bed – he will have a very high chance of survival, at least as regards ventricular fibrillation seen in isolation from any other medical condition. As a general rule of thumb, however, a person's chance of survival is reduced by around 7 – 10% for every minute of delay in carrying out defibrillation following his entering ventricular fibrillation. If optimal CPR is used meantime the person's chance of survival is reduced by around 3 – 4% for every minute of delay in carrying out defibrillation. However these percentages are approximate and will vary from case to case.

The availability of defibrillators and resusciades in Glenochil

41. As at September 2013 there were no defibrillators or AEDs readily accessible to prison officers anywhere in Glenochil. There was a defibrillator in the prison health centre. However at night, when no nurses were on duty, it was locked in

a cupboard in their office. It was therefore not accessible by any of the night shift officers on the night of 15 September 2015. Only Mr Saunders, of the officers directly involved in attending on Mr Adam, was even aware of the presence of a defibrillator in the health centre. It is unclear whether it was an AED.

42. As at September 2013 there was a 'crash pack' of first aid equipment located at the shift manager's office in Abercrombie Hall. It is unclear whether or not at that time it included any resusciades (although it now includes two such devices). Even if the crash pack did contain a resusciade on the night in question, not all the prison officers attending on Mr Adam were aware of it. Mr Saunders, in particular, believed that resusciades were no longer available in the prison.

Identifying the need for defibrillation

43. When a person collapses and loses consciousness it is critical to quickly identify whether they have simply fainted or are in ventricular fibrillation. If the person is still breathing and their heart is still pumping normally it is likely that they have fainted. In such a case the appropriate course of action is to place the person in the recovery position and call an ambulance. The purpose of placing the individual into the recovery position is to prevent any possible vomit being aspirated into the airway, not to provide any more positive assistance. Chest compressions and rescue breaths are inappropriate in such circumstances and may be counter-productive. That is because compressions carry a risk of

fracturing the patient's ribs, and because applying rescue breaths to a patient who still has respiration may impede his own efforts to breathe. However, where a person has collapsed into unconsciousness but has no pulse, and no spontaneous respiratory effort, CPR and use of a defibrillator is urgently necessary.

44. A qualified nurse, by virtue of her training, can be expected quickly to recognise whether a collapsed patient is in ventricular fibrillation, and hence to recognise the urgent need for CPR and defibrillation. In particular a nurse can be expected to be aware of agonal breathing, and to recognise its presence and significance. Where there is doubt as to whether a patient is breathing normally, a nurse can be expected to be aware of need to try to detect a pulse, so as to determine whether the person's heart is still pumping. A prison officer cannot be expected to recognise and be aware of all these matters unless he has been specifically trained to do so, that is, over and above the training integral to his role as a prison officer.

The prison officers' first aid training

45. Some prison officers are trained first aiders, but not all. Of the nine officers on duty at Glenochil on the night of 14 to 15 September 2013, seven were first aiders. Since medical and nursing staff ceased to be on duty in the prison during the night shift, informal administrative efforts had been made to have a higher percentage of prisoner officers with first aid training on the night shift.

46. Mr Smith was a trained first aider. His training had been done in house within SPS by reference to standard manuals such as that provided by the St John's Ambulance Service. He had completed an initial three day course with a refresher course every three years. Mr Smith's last refresher course prior to the events in question had been a one day course in February 2013. The course included some training in relation to first response to persons having a heart attack, including what to look for in an individual having a heart attack and basic treatment, including CPR.

47. Mr Saunders was not only first aid trained but was also a trained first aid instructor, having gained this qualification when serving in the Royal Navy in 1986 and having renewed it after joining the prison service in around 1998. He had trained prison staff in first aid in Glenochil. However as an instructor Mr Saunders taught nothing more than normal first aid, and he had no greater knowledge of first aid simply by virtue of being a qualified instructor.

48. The prison officers' first aid training did not include any reference to recognising or understanding the significance of agonal breathing in a collapsed patient, nor the need to take a pulse in order to check whether a collapsed person's heart was still pumping normally. Nor did it include any training in relation to when and how to use an AED. Mr Smith had not heard of agonal breathing. Mr Saunders had heard of it, but did not know what it meant.

49. Coincidentally, Mr Saunders had been trained in the use of defibrillators. In around 2008 he had taken a course with SPS, which was separate from the

standard first aid course. He had done this voluntarily. As at September 2013 there was no formal requirement for prison officers in Glenochil to be trained as to when and how to use a defibrillator. Mr Smith did not know how to use one and thought they were for use by medical personnel.

The response of the prison officers to Mr Adam's collapse

50. In the light of all this, on finding Mr Adam unconscious in his cell, the prison officers failed to recognise that his breathing was agonal and that he was in ventricular fibrillation. They were thus unaware of the true nature and severity of his condition. Thinking him to still be breathing normally they did not try to detect a pulse. Had they done so they would likely have realised that his heart had stopped beating.

51. Accordingly no CPR was attempted at this stage. Instead Mr Smith and Mr Saunders put Mr Adam on the floor and into the recovery position. Mr Smith then went to summon an emergency ambulance. He did this by contacting the Glenochil electronic control room by radio, who then in turn telephoned the Scottish Ambulance Service ("SAS"). Mr Smith contacted the control room at around 01.56.

52. A telephone call was also later made to Dr Blackmore advising him of the circumstances, and that because an ambulance had been called his attendance was not now required. Dr Blackmore therefore did not go to Glenochil that night.

53. At around 01.58 Mr Jackson, who had remained in the cell with Mr Saunders, thought that Mr Adam had now stopped breathing. This was simply his impression from observation of Mr Adam's condition. He had not taken a pulse. He notified the other officers of this by announcing a 'code blue' on his radio. Mr Smith heard this and returned to the cell. Meantime Mr Jackson and Mr Saunders had placed Mr Adam flat on his back on the floor of the cell and started administering chest compressions to him.

54. When he returned to the cell Mr Smith had a resusciade with him, but he did not see the need to use it, and he did not tell his fellow prison officers that he had it. It is unclear where he got it from. He did not recognise, notwithstanding his first aid training, that CPR would likely be optimised if chest compressions were accompanied by rescue breaths using the resusciade. Mr Saunders was aware that rescue breathing was appropriate in addition to chest compressions, but was not willing to carry out direct mouth to mouth resuscitation on Mr Adam, and was not aware that Mr Smith had a resusciade. Had he been aware of this he would have used it to give Mr Adam rescue breaths.

The response of the Scottish Ambulance Service

55. SAS answered the telephone call from the Glenochil control room at 01.56.59 on 15 September 2013. This call had been made at 01.56.56. Juliette Blair, paramedic, was allocated to respond to this call at 01.57.34. Ms Blair worked alone, as a first responder, a role she had held for some seven years by that time.

She was instructed to attend on a male prisoner at Glenochil with chest pains.

56. SAS have a target that they will respond to 75% of Category A calls within 8 minutes across Scotland. In 2013/14 SAS responded to 73.9% of such calls within this time. Category A calls are 'immediate life threatening events'. The call to SAS regarding Mr Adam was a Category A call.

57. When she took the call Ms Blair was stopped by her vehicle outside the police station in Alloa. She immediately got into her vehicle and drove to Glenochil. She was within 200 metres of the prison at 02.00.40. She stopped her vehicle outside the prison at 2.01.17. She was checked through security gates and parked her vehicle near Abercrombie Hall at 02.04.06. She was met by a prison officer and taken immediately into the Hall and up two flights of stairs to Mr Adam's cell. It took her between around a minute and a minute and a half to get from her vehicle to the cell.

58. From the time of receiving the call from the SAS control room Ms Blair could not reasonably have got herself to Mr Adam's cell any quicker than she in fact did.

59. When Ms Blair arrived at Mr Adam's cell he was lying on his back on the floor inside the cell. There was a prison officer standing at the doorway to the cell, but there was no officer inside the cell. No prison officer was performing CPR at this time. Officers Saunders and Jackson had heard Ms Blair approaching and had moved out of the cell to let her in. Mr Adam was cyanosed (his skin was blue-ish in colour, due to lack of oxygen) and was still breathing agonally. He was in cardiac arrest. This was all immediately obvious to Ms Blair as a trained and

experienced paramedic.

60. Ms Blair was equipped with a defibrillator. She turned it on and noted the time on the display as 02.05. In accordance with her normal practice, she wrote this time on the back of her glove. She applied the defibrillator to Mr Adam. Aware that it would tell her whether there was any heart activity, and of the urgency of the situation, she did not waste time trying to take his pulse. She then administered an electric shock to Mr Adam. This was done within around 30 seconds of her entering the cell, that is, at around 02.06.

61. Notwithstanding the shock administered by Ms Blair Mr Adam remained in ventricular fibrillation. Ms Blair then instructed the prison officers present to perform CPR on Mr Adam while she intubated and cannulated him. Intubation involves putting a tube down the throat and using a bag attached to it to pump air into the lungs. It is in effect an alternative method of applying rescue breaths. By means of the canula Ms Blair administered cardiac drugs epinephrine (adrenalin) and amiodarone, designed to assist in restarting the heart and restoring it to normal rhythm. Further shocks and further doses of adrenalin were administered by Ms Blair while the prison officers continued to perform CPR, again without success.

62. At around 02.22 two further paramedics arrived at Mr Adam's cell. Together with Ms Blair they continued to try to save Mr Adam's life by further attempts at defibrillation and CPR. All this was unsuccessful and he remained in ventricular fibrillation. At no point did Mr Adam regain consciousness.

63. Mr Adam was transported to the paramedics' vehicle around 02.50 and taken to FVRH around 03.05. Mr Saunders went in the ambulance also. Ms Blair and her colleague continued to perform CPR. On the way to the hospital Mr Adam went into pulseless electrical activity and then asystole. He was pronounced dead shortly after arrival at FVRH, at 03.32 on 15 September 2013.

Mr Adam's chances of survival

64. Mr Adam entered ventricular fibrillation when he became unconscious. He was already unconscious when found in his cell by the prison officers around 01.55. He may already have been unconscious for a minute or two prior to his collapse being noticed. No chest compressions were commenced on him until at least 01.58, when the code blue was called by Mr Jackson. In these circumstances Mr Adam's chances of survival through defibrillation by Ms Blair commencing at around 02.06 were poor. Given finding 40 above, his chances of survival would likely have declined by around 7 – 10% per minute for every minute he was in ventricular fibrillation prior to 01.58 (given that no chest compressions were administered during this period), and 3 – 4% per minute for the 8 minutes to 02.06 thereafter (given that chest compressions were administered during this period). The absence of rescue breaths to accompany chest compressions in the period 01.58 to 02.06 may have decreased his chances of survival slightly, but this is impossible to quantify.

Post mortem examination

65. The post mortem examination of Mr Adam was carried out on 18 September 2013 by Dr Ian Wilkinson, a consultant forensic pathologist.

66. On examination by Dr Wilkinson Mr Adam was found to have a fracture at the midpoint of the sternum and further fractures of ribs two to six, both left and right, all within the midclavicular. These fractures were all consistent with Mr Adam having received CPR.

67. There was no gross abnormality to the myocardium of Mr Adam's heart, that is, to the muscular part which forms the majority of the heart. There was no gross or microscopic evidence of a disease process to the heart valves. However there was coronary artery atherosclerosis within the left anterior descending and circumflex arteries.

68. Coronary artery atherosclerosis is multi-factorial in cause, including genetic and metabolic components, as well as environmental factors such as high fat diet, smoking, high blood pressure and obesity. It is a chronic disease which typically develops slowly over many years. It involves narrowing and hardening of the coronary arteries. This leads to reduction in the diameter of the vessel and the ability of blood to flow through it. It most frequently presents as angina, with symptoms of breathlessness and chest pain. However it also carries a risk of sudden death with severe disease without any preceding symptoms.

69. Within the proximal third of Mr Adam's left anterior descending artery the coronary artery atherosclerosis had resulted in a severe stenosis of the vessel

lumen. In other words the cross sectional diameter of the artery was reduced by more than 70%. Further, observation and cross sectional microscopic analysis of the diseased sections of Mr Adam's coronary artery established the presence of a thrombosis within this vessel.

70. The muscles of the heart rely on a constant supply of blood to oxygenate them. If there is a complete obstruction of a coronary artery, then blood is not able to perfuse the area of the heart supplied by that vessel. There is then an increased risk of a number of cardiac events. These include myocardial infarction or cardiac arrest ('heart attack') or cardiac arrhythmia, (where the heart takes on an abnormal beating rhythm). Both these events can cause the heart to stop beating and lead to sudden death.

71. Complete obstruction of a coronary artery can be caused by a clot or thrombosis. A clot can form for a number of reasons, all ultimately related to the coronary artery atherosclerosis itself. The fact that the artery is diseased at a given location can itself encourage cells to accumulate and so create a clot at that location. The presence of a clot, in an already narrowed artery, can then (by various mechanisms) cause a sudden obstruction of the vessel, leading to a heart attack. Even in the absence of complete obstruction, however, the blood supply in a diseased coronary artery may reduce to such an extent that cells in the heart are damaged and a heart attack results.

72. In the light of his examination Dr Wilkinson correctly certified the sole medical cause of Mr Adam's death as coronary artery atherosclerosis, all the findings

relevant to his death having stemmed from the presence of this disease. It is not possible to identify the exact mechanism of death, but it is likely that Mr Adam had a thrombosis caused by his coronary artery disease, which blocked or so restricted the already narrowed left anterior descending artery that it caused a heart attack or fatal arrhythmia.

73. Although there was no gross abnormality to the heart, microscopic examination revealed a very small area of damage to Mr Adam's heart where there had been a previous episode of ischemia. This was consistent with him having had a very small heart attack between fourteen days and a month prior to his death, for example, on 24 August 2013.

Subsequent developments

74. In June 2014 five AEDs were installed in Glenochil. They are located in Devon Hall, Harvieston Hall, Abercrombie Hall, the health centre, and the main reception area. A further AED had been installed in the main link corridor by September 2016. These defibrillators were supplied and are maintained by Forth Valley Health Board.

75. These AEDs are now readily accessible for use in an emergency. With appropriate haste an AED can be retrieved and taken to any cell in the prison within around 5 minutes.

76. On 6 December 2016 SPS issued a Governors and Managers Action Circular reference 069A/16. This circular confirms that all SPS establishments have been

issued with AEDs and gives directions as regards their location, use and maintenance. In particular, instructions on how to use an AED are included with the circular. These comprise two instruction posters which prison governors are directed to display in the area where the AEDs are installed. The first poster states that "in the event of a medical emergency during patrol and nightshift the defibrillator should be brought to the scene by a member of SPS staff." Clear instruction is given in relation to how to use an AED, but not when to use one – "medical emergency" is not further defined. In particular there is no reference to identifying agonal breathing or loss of consciousness as indicating a need for urgent defibrillation.

77. Nursing and medical staff working within Glenochil are trained to use defibrillators. This training is part of regular mandatory updates for medical staff. SPS staff with training in first aid are now being trained in the use of defibrillators. Such training commenced in February 2015 and is ongoing. First aid trained SPS staff are allocated across shifts within Glenochil. It is unclear whether their training now includes instruction on recognising and understanding the significance of agonal breathing in a collapsed patient, and the appropriateness of seeking to detect a pulse in such a situation.

NOTE:

Introduction

[1] I initially heard evidence in this inquiry on 18 November 2015. Miss Heather Smith, Procurator Fiscal Depute, appeared for the Crown and Mr Michael Higgins, solicitor, appeared for the Scottish Prison Service. No other persons were present or represented.

[2] A joint minute was lodged. Oral evidence was then led by the Crown from Alan Smith and Martin Saunders, both prison officers, Dr Michael Blackmore, General Practitioner, Fiona McAinsh, Staff Nurse, Dr Ian Tuck, consultant in emergency medicine, Dr Douglas Morrison, consultant in general and respiratory medicine, and Dr Ian Wilkinson, consultant forensic pathologist. Some of these witnesses were asked a few further questions by Mr Higgins.

[3] The Crown having intimated that it did not intend to call any further witnesses, I was invited by both the Procurator Fiscal Depute and Mr Higgins to conclude the inquiry and to make formal findings only. For the reasons set out in a Note of 24 November 2015, further discussed below, I declined to do so, and instead invited the Crown to give consideration to identifying and calling further witnesses. There was significant delay in progressing this invitation, and a number of procedural hearings were held through 2016.

[4] Ultimately, further evidence was led at a hearing on 19 January 2017. On that date Mr James O' Reilly, Procurator Fiscal Depute, appeared for the Crown. Mr Higgins again appeared for the Scottish Prison Service. On this occasion however Mr Richard

Pugh, Advocate, appeared for Forth Valley Health Board and the Scottish Ambulance Service, and Mr Graham Gibson, solicitor, appeared for the Scottish Prison Officers' Association. A second joint minute was lodged. I heard oral evidence from Ms Juliet Blair, paramedic and Dr Ashok Jacob, consultant cardiologist. I then heard further evidence from Mr Smith and Mr Saunders, and also from Mr Iain Hill and Mr Derek Jackson, also prison officers. I then heard submissions from all parties' representatives. Attention was drawn to the determination of Sheriff Mohan of 29 September 2106, following inquiry into the death of Andrew Hamilton in HMP Dumfries ([2016] FAI 18), a case with some similarities to the present. A further joint minute was lodged agreeing that the police statement of Dr Alan Fraser, formerly director of Health and Care at SPS, dated 7 January 2016, should be taken as his evidence to the inquiry. I reserved judgment.

[5] I am grateful to all parties' representatives for their efforts in production and examination of evidence and submissions. It is regrettable that Mr Adam's relatives were not present nor represented, and I do not know their attitude to the issues in this inquiry. Their absence may perhaps have contributed to the lack of a contradictor on some important chapters of evidence, and in the circumstances I sought to take a more active role in the inquiry than might otherwise have been necessary.

Submissions

[6] In their written submissions Mr Higgins and Mr Pugh helpfully set out the legal framework relevant to an inquiry such as this, by reference to the relevant provisions of

the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976, together with certain case authorities cited by them. There was no dispute between parties representatives as to the applicable law. From the authorities a number of propositions can be stated.

[7] In the first place any findings made under section 6 of the 1976 Act must be based on the evidence which has been led at the inquiry, and must be properly supported by it. Speculation is not permissible.

[8] As regards sections 6(1)(a) and (b) of the 1976 Act (the time and place of death and any accident resulting in the death, and the cause or causes of it), these are normally matters of medical evidence. This was clear and non-contentious in the present case.

[9] As regards section 6(1)(c) the sheriff is required to determine "the reasonable precautions, if any, whereby the death and any accident resulting in the death might have been avoided". The purpose is not to determine any question of civil or criminal liability nor to apportion blame. Not all precautions which might conceivably have been taken will be reasonable precautions. The phrase "might have been avoided" means less than 'would on a balance of probabilities have been avoided'. Rather it invites consideration of whether there was a serious or 'lively possibility' of avoiding the death, being a possibility with some substance or potential rather than being merely fanciful or notional.

[10] As regards section 6(1)(d) the sheriff is required to determine "the defects, if any, in any system of working which contributed to the death or any accident resulting in the death." 'System of working' is to be interpreted widely, and in the present context

would include any system, or lack of system, of working, supervision, or routine in a custodial institution, where this has positively contributed to the death or accident resulting in the death. Similar considerations apply to a finding under this subsection as to finding under subsection (c), with the difference that the evidence must be sufficient on a balance of probabilities to justify the finding. In other words the standard of proof in relation to causation is higher. A precondition to making a recommendation under subsection (d) is satisfaction that the defect in question did in fact cause or contribute to the death.

[11] As regards section 6(1)(e), this requires the sheriff to determine "any other facts which are relevant to the circumstances of the death". The wording of this paragraph gives wide scope, in that there is no requirement for there to be a causal connection between the 'other facts' and the death, but such facts must be relevant to the circumstances of the death and are not a proper substitute for findings in fact. This sub-section may therefore be appropriately used to make recommendations, and to list observations, which are relevant to the death but lack a causal link to it. There may, as Mr Higgins submitted, be a line to be drawn between findings under section 6(1)(e), and matters which although of concern to the court did not directly relate to the death, in which case observations in a Note attached to the determination may be more appropriate than a formal finding under section 6(1)(e).

[12] Against this background, in the light of all the evidence, and in short summary, Mr O' Reilly invited me on behalf of the Crown to make a finding under section 6(1)(c) of the 1976 Act to the effect that had Mr Adam been defibrillated earlier than he was it

might have made a difference to the death. He submitted that there were no grounds for a finding under 6(1)(d) given the higher standard of proof in relation to causation applicable in relation to this provision, and that it was not possible to say that the absence of a defibrillator caused the death. Mr Higgins, on behalf of SPS, maintained that no findings should be made under section 6(1)(c) or (d). Even had a defibrillator been available to the prison officers they would not, consistent with their first aid training, have been aware of the need to use it. They could not reasonably be criticised for a lack of medical knowledge, expertise and experience in this regard. Mr Gibson, on behalf of SPOA, submitted that no findings should be made under section 6(1)(c), the prison officers having performed their duties to the best of their abilities. Mr Pugh, for SAS and FVHB, maintained that no findings under section 6(1)(c) or (d) should be made as regards his clients. To have night time medical or nursing staff on duty at Glenochil was not a reasonable precaution, in all the circumstances. Moreover SAS could not have attended on Mr Adam more quickly than it did, nor have done more than was in fact done, but even then his chances of survival were slim to non-existent. Certain of the more detailed submissions are further addressed in the discussion below.

Where and when the death took place

[13] The evidence of the place and time of death was clear and undisputed. It was agreed by joint minute that Mr Adam's life was pronounced extinct at 03.32 on 15 September 2013, at Forth Valley Royal Hospital, Larbert.

The cause or causes of death

[14] Again, this was clear and undisputed on the evidence of Dr Ian Wilkinson, who performed the post mortem examination. The cause of the deceased's death was coronary artery atherosclerosis. The likely mechanism whereby this condition led to the death is set out at finding in fact 72 above.

Whether there were any reasonable precautions whereby the death might have been avoided: 1976 Act, section 6(1)(c)

[15] In my view there were reasonable precautions whereby Mr Adam's death might have been avoided, in the sense described in the authorities summarised above. A number of issues arose, which can be considered in turn.

Mr Adam's diagnosis and treatment prior to 15 September 2013

[16] It is apparent that at the time of his death Mr Adam was a middle age, overweight, smoker. On 24 August 2013 he presented with symptoms which on the face of it were consistent with him having had a heart attack. He was taken to FVRH and subjected to ECG and troponin testing, and subsequently to an ETT on a treadmill. Following these tests it was concluded, in effect, that he had not had a heart attack, and that he did not have heart disease or coronary artery disease. Dr Morrison, an experienced consultant in general and respiratory medicine, gave unchallenged evidence that the tests to which Mr Adam was subjected represent standard practice both nationally and internationally and are highly effective in detecting heart disease. Nothing in life or medicine is certain, but Dr Morrison gave evidence to the effect that,

given the test results, the chances of Mr Adam having a cardiac event on 15 September 2013, such as in fact occurred, were very low, perhaps as low as 0.2% in the light of published peer reviewed studies.

[17] I found Dr Morrison to be an impressive witness, and did not doubt his experience and expertise. However I remained puzzled and concerned by the apparent disconnect between (i) the confidence, approaching statistical certainty, in the minds of the treating clinicians, that Mr Adam had not had a heart attack on 24 August 2013 and did not have coronary artery disease, and (ii) the clear and uncontested evidence from Dr Wilkinson, at post-mortem, that Mr Adam not only had such a disease, but that it was severe in nature and extent, with a consequent significant risk of sudden death. There was indeed some further evidence from Dr Wilkinson which was at least consistent with Mr Adam having indeed had a very minor heart attack on 24 August 2013: see finding in fact 73. Why was all this not detected by the supposedly highly reliable testing to which he had been subjected at FVRH?

[18] Given this apparent disconnect, and with all due respect to Dr Morrison, it seemed to me appropriate that a suitably qualified but independent consultant physician should review all of Mr Adam's GP and hospital records, together with the findings of the post-mortem examination, and provide a report on the following matters: (i) was all appropriate testing of Mr Adam carried out following his admission to FVRH on 24 August 2013? (ii) was such testing competently conducted? (iii) if so, why was Mr Adam's heart condition not detected, given its obvious severity as confirmed post mortem? Dr Ashok Jacob, consultant cardiologist, subsequently provided such a report

on these matters and I am grateful to him. Having reviewed the records and relevant documentation he confirmed that the testing of Mr Adam by Dr Morrison and his colleagues was both appropriate and competently conducted. He did not dispute the statistical evidence in relation to such testing as regards prognosis. However Dr Jacob explained that even so, false negatives are recognised in the relevant literature, that is, that a person can have coronary artery disease but that this may not be detected by ETT. Dr Jacob too was an impressive witness, with clear relevant expertise, and I accepted his evidence in this regard.

[19] Ultimately therefore I have to conclude that, in layman's terms, Mr Adam was simply very unlucky that his heart condition was not diagnosed at FVRH between 24 and 26 August 2013. His test results were a false positive. Put another way, he was likely someone who fell into the 0.2% of cases where the relevant tests fail to detect disease. I am satisfied, in particular on the evidence of Drs Morrison and Jacob, that the fact that Mr Adam's coronary artery disease was not diagnosed at this time was not due to any failures to take reasonable precautions by medical staff at FVRH.

[20] In an important respect, however, Mr Adam was doubly unlucky. Not only was his coronary artery disease not detected, he had by the testing which he had received at FVRH between 24 and 26 August 2013 been given, to some extent, a clean bill of health as regards such matters. Subsequent decision making, both on 10 September and 15 September 2013 was made in the light of this. In other words Fiona McAinsh, Dr Blackmore and the prison officers all initially responded to Mr Adam's complaints on these dates in the knowledge that he had very recently been fully tested for heart disease

and not found to have had any. When he presented with similar symptoms on 10 and 15 September 2013 to those which he had had on 23 and 24 August 2013, therefore, the starting point for those concerned might possibly have been to discount, or at least doubt to some degree, that these symptoms were due to heart disease, and so to respond accordingly. If they did so however, in the circumstances, this would have been entirely understandable. The positive test results were, to use an expression employed by Mr O'Reilly in another context, a 'false friend' to Mr Adam, by wrongly giving others at critical points some reassurance that his condition was not as it turned out to be.

The CCTV evidence – or rather the lack of it

[21] I was advised by Mr O'Reilly and Mr Higgins, at a very late stage in the proceedings, that in September 2013 the top floor of Abercrombie Hall at Glenochil had been covered by CCTV cameras. As I understood them, it is unlikely that the camera footage would have shown the inside of Mr Adam's cell, but it is likely that it would have shown the comings and goings of the prison officers and paramedics to and from the cell in the early hours of 15 September 2013, and that it would have had a clock showing the timings of such movements. On reflection it is unsurprising that SPS should have had such cameras in place, but prior to the matter being raised I had not been aware that they did, and so had not earlier queried the absence of the relevant video footage in the course of the evidence.

[22] It was therefore a matter of considerable concern to me to be told by Mr O'Reilly at the stage of submissions that the Crown had failed to request the CCTV footage from

SPS following Mr Adam's death, and that it had now been destroyed. He accepted that the Crown was fully responsible for this failure, and that it was not due to fault on the part of SPS.

[23] I consider that this is both incomprehensible and unacceptable. Where, as here, a serving prisoner dies in custody, an inquiry such as this is mandatory. Where, as here, the death is sudden, such as resulting from a heart attack, then it should be obvious from the outset that the inquiry will require to look closely at who did what and when, perhaps within a very short timeframe, and to establish an accurate timeline of events. It should also be obvious that CCTV evidence, with a timeclock, is likely to be extremely valuable in establishing these matters, and to be more accurate than the simple recollections of the individuals involved, working under stress at a time of crisis. At the very least it may be a valuable aid to recollection. All this should have been known to the Crown from the outset.

[24] Recovery and preservation of the relevant CCTV evidence, in the circumstances, should have been accorded very high priority by the Crown immediately after Mr Adam's death. Plainly it was not, for reasons that remain unexplained. On reflection I find it hard to understand why it could ever have been thought by the Crown that the inquiry would *not* want to view the CCTV evidence in this case. However because it is not available to me significant factual disputes and uncertainties have arisen which I now have to resolve without the single piece of evidence which would likely have put them beyond doubt, a piece of evidence which could and should have been made available.

[25] As will become apparent, one of these disputes lay between what the relevant prison officers claimed to have done by way of CPR for Mr Adam, and the evidence of Ms Blair, the paramedic. Such was the nature, degree and significance of the dispute that I began to have concerns as to whether or not SPS was somehow seeking to conceal evidence from the enquiry, by failing to preserve the CCTV footage, and so protect its own position and that of the prison officers. However, Mr Higgins submitted, this is the Crown's inquiry and it is for them to make investigations and obtain evidence. He said that the CCTV was not requested from SPS within the time period for which it is held, which he thought would be a few weeks. In some prison inquiries CCTV was requested, in others it was not. Accordingly Mr Higgins submitted that SPS did not withhold the CCTV in any way. There was no 'cover up', no attempt to prevent the full picture being presented to the inquiry. The CCTV was simply never asked for by the Crown. Had it been asked for, SPS would have provided it.

[26] I accept Mr Higgins' submissions on these matters, which were not contradicted by Mr O' Reilly. I cannot and do not conclude that SPS were responsible for the CCTV not being made available, nor that there was any attempt by them to prevent relevant evidence bearing on the prison officers' actions from being put before the inquiry. What I am left with therefore is a concern as to the degree of care and diligence with which the Crown has approached its responsibilities in relation to this inquiry. Lest it somehow be forgotten, however serious or unpleasant the offences which caused him to be in prison, whilst there Mr Adam was as entitled to proper respect for his human rights as anyone else cf. *Shahid v Scottish Ministers* 2016 SC (SC) 1 at paragraph 4. In the

present context that means respect for his rights under the procedural aspect of Article 2 of the European Convention on Human Rights, that is, to have a thorough, diligent and comprehensive inquiry into the circumstances of his death cf. *Kennedy & Black v Lord Advocate* 2008 SLT 195, and more generally, Reed & Murdoch, *Human Rights Law in Scotland* (4th Edition, 2017), paragraph 4.36. Failing to secure and preserve potentially important and relevant pieces of evidence, particularly where that can easily be done, makes that task unnecessarily difficult, and in some cases may frustrate it.

[27] In the light of all this I would strongly recommend that the Crown and the prison authorities enter into arrangements or protocols to ensure that, following a death in prison, all relevant CCTV footage is urgently identified, recovered and preserved in the hands of the Crown, such that should any party to the subsequent inquiry, or the Court, wish it to be placed in evidence, it is available for that purpose. Where there is a timeclock on the CCTV, the timings should be tested for accuracy as against an electronic clock, so as to enable them to later be reconciled against other evidence of timing which may emerge. None of this is difficult or novel. It is (or should be) common police practice in a world in which both public and private spaces are increasingly monitored by CCTV.

[28] I accept Mr Higgins' submission, noted above, that this is a matter to be raised properly in this Note, rather than by a formal finding under section 6(1)(e). That is because I accept that it is a matter more directly relevant to the process of the inquiry itself, rather than to the death of Mr Adam.

Establishing the timeline

[29] The first significant issue that would have been likely to have been resolved by the CCTV evidence is the question of the timings of a number of important events on the night of 15 September 2013. In a case such as this, and given the terms of finding in fact 40 above, precise timings are plainly critical. Delays in effective treatment of a very few minutes may well make the difference between life and death. It is therefore important to establish an accurate timeline, so as to determine whether there was any such delay, and if so the reasons for it.

[30] In this case the critical time period is between the time when Mr Adam was found collapsed in his cell by the prison officers, and the time that the first electric shock was administered to him by Ms Blair using her defibrillator. Within this period the precise timings come from a variety of sources, none of which was accurately reconciled to each other in the evidence.

[31] The starting point is the most accurate source of certain timings, which is the SAS control room's electronic timings of Ms Blair's movements on the night in question. Mr Pugh described for me the means by which these timings had been obtained, and I was satisfied that in the light of this these could simply be agreed as accurate timings in a joint minute. This makes clear that SAS received a telephone call from the Glenochil control room at just before 01:57 on the morning of 15 September 2013, that Ms Blair was instructed to attend about 30 seconds later, that she was within 200 metres of the prison by 02.00, and that she stopped her vehicle outside Abercrombie Hall, at the closest point

to Mr Adam's cell, at just after 02.04. I am satisfied that these timings can be taken as accurate reference points to which the other evidence can be related.

[32] The next source of evidence is the oral evidence of Ms Blair herself. There was some confusion about when exactly she arrived at Mr Adam's cell and first administered an electric shock to him. That confusion arises in particular from discrepancies between the SAS patient report form produced by Ms Blair, and that produced by her colleagues in the second paramedic unit to arrive at the scene, both of which are now lodged as production 17.

[33] Ms Blair's evidence was that she was met by a prison officer when she stopped her vehicle outside Abercrombie Hall (later identified as being prison officer Iain Hill) and that they immediately went to Mr Adam's cell, taking around a minute to a minute and a half to get there. Mr Hill did not ultimately demur from this timing and it seems to me to be a reasonable estimate given the distances involved. They had to climb two flights of stairs, but would have been hurrying, mindful of the urgency. That means that Ms Blair arrived at the cell at between 02.05 and 02.06. She said that from her training and experience she knew immediately that Mr Adam was in cardiac arrest, and that accordingly she prepared and applied the defibrillator to him within 30 seconds or so of arrival in the cell. She said that on turning on the defibrillator it showed her the time, and that it was her practice to write this on the back of her glove, mindful of the importance of recording the time of her first attendance and the need to include it in her patient report form later. All this is consistent with the terms of Ms Blair's own patient

report form, which records that she first checked Mr Adam's vital signs at 02.05. On Ms Blair's evidence, therefore, Mr Adam was likely first shocked by her at around 02.06.

[34] The problem arises because the further patient report form which was completed by Ms Blair's colleagues records the times when the defibrillator shocks were said to have been administered, and indicates that Mr Adam's vital signs were first taken at 02.08 and that the first shock was administered at 02.09.

[35] Ms Blair was asked about this. She described the procedure by which the two patient report forms were completed. She said that Mr Adam had been taken to hospital in the second paramedic vehicle, but that she too had travelled with him in this vehicle, together with a prison officer. She said that one of her colleagues entered the data on the form (in fact, onto a computer screen, from which a hard copy report was later produced) whilst on route to the hospital. This was necessary because it would have to be available for the hospital staff at point of admission. So some of the timings input onto this second report were input from information provided by her, and some not. Some information might have been provided directly by the prison officer who had also travelled to hospital in the paramedic vehicle. After leaving Mr Adam at the hospital Ms Blair was taken back to her own vehicle at Glenochil, and she then prepared her own patient report. She could not explain why the timings of the first attendance at the cell were different on her form from those on her colleague's form.

[36] The process which Ms Blair described seemed to me to almost invite confusion and discrepancy. It was accepted that the target time for SAS first responder attendance was eight minutes in 75% of cases such as the present. I therefore did consider whether

Ms Blair might have wrongly entered 02.05 on her form so as to appear to have complied with such a target (given that she had received the call at 01.57). However I think that this is unlikely. In the first place I thought Ms Blair to be a generally credible and reliable witness, who gave her evidence in a straightforward and clear manner. In the second place, her arrival at the cell at around 02.05 is consistent with her stopping her vehicle outside Abercrombie Hall, as accurately timed at 02.04, for the reasons already given. Third, if Ms Blair was intending to fabricate the time on her own form she would presumably have given the same time to her colleagues when they were preparing the other form. Overall I cannot explain the discrepancies in the timing on the two forms other than as arising from a rather poor process of record keeping in the circumstances, and a mis-recording or mis-understanding between Ms Blair and her colleagues in the heat of the moment.

[37] In all the circumstances I conclude that it most likely that Ms Blair first attended on Mr Adam in his cell at between 02.05 and 02.06, and that he was first shocked with the defibrillator within around 30 seconds thereafter, that is, around 02.06.

[38] The next source of evidence in relation to the timings is the evidence of the prison officers, and in particular that of Mr Smith, the shift supervisor. His timings were largely drawn from his memory of events when compiling his report a few hours later. He accepted in evidence that there was some margin for error in relation to some of the timings. However he said that the calling of the code blue by Mr Jackson at 01:58 – by radio – was recorded directly by the prison control room, and that he got this time directly from the control room. It would therefore have been accurate for this reason. I

was prepared to accept this, and thus that it was indeed at 01.58 that Mr Jackson first thought that Mr Adam had stopped breathing and called the code blue.

[39] But this then leads on to the important question of when exactly Mr Smith and Mr Saunders first found Mr Adam unconscious in his cell. Mr Smith's evidence was that this happened at 01.50. This timing was not challenged in cross examination, and in large measure it seemed to be accepted in the course of the hearing to be accurate. However it was taken from Mr Smith's recollection and nowhere else, as far as I could tell, and ultimately I did not find it to be reliable.

[40] The difficulty is that if (as I accept) SAS were contacted by the prison control room at just before 01:57, and assuming (as I do) that the control room would have acted immediately on Mr Smith contacting them, I cannot then see why it would have taken Mr Smith more than six minutes between finding Mr Adam collapsed in the cell (if that was at 01.50) and his contacting the control room to ask them to call an ambulance. Initially I wondered whether there might have been a delay due to Mr Smith having to return to his office to telephone the control room. However prison officer Iain Hill, who had been present at the time, said that Mr Smith had contacted the control room by radio, from a location which must have been at or near to the cell. Furthermore, Mr Saunders' evidence suggested to me that the period between Mr Smith going to call for an ambulance and Mr Jackson calling the code blue at 01:58 was short, and my impression was that Mr Saunders thought that it was shorter than the roughly eight minutes which Mr Smith's timings would otherwise suggest. Further still, I have found that Mr Adam was breathing agonally when he was found collapsed by Mr Smith and

Mr Saunders, and also accept Ms Blair's evidence that he was still breathing agonally when she entered the cell. As I have accepted that the latter event took place at between 02.05 and 02.06, for Mr Smith's timing of 01.50 to be accurate, Mr Adam would have had to have been breathing agonally for at least 15 minutes. On the evidence of Dr Jacob that is perhaps conceivable, but seems unlikely – see finding in fact 33 above.

[41] In the light of all this, I reject Mr Smith's evidence that Mr Adam was found collapsed by him and Mr Saunders at 01.50. Assuming, as seems reasonable, that it took him and Mr Saunders about a minute to put him into the recovery position on the floor, and for Mr Smith to leave the cell and radio the control room to ask them to call an ambulance, I conclude that the true time when Mr Adam was found unconscious by the officers was likely nearer to 01.55.

[42] These timings are reflected in the findings in facts which I have set out above. They have the consequence that Mr Adam's chances of survival, standing the statistical evidence in finding in fact 40, were somewhat better than was perhaps assumed in the course of the hearing. It is still not possible to say exactly when Mr Adam first became unconscious because that may have been a minute or two prior to his being discovered in this state by Mr Smith and Mr Saunders, but on my findings the period of time in which he was in this condition prior to the calling of the code blue may have been as little as three minutes, with the time thereafter to defibrillation by Ms Blair a further eight minutes.

When did CPR start?

[43] The second significant factual issue which CCTV evidence might well have resolved is as to when CPR on Mr Adam was first started. All four officers who gave evidence said that it started immediately after Mr Jackson called the code blue at 01.58, and was continued by them until Ms Blair arrived at the cell, and thereafter on Ms Blair's express instructions. There were however discrepancies in the officers' accounts, in particular as to whether chest compressions were being carried out at the precise point that Ms Blair arrived at the cell, and if so by whom. Ms Blair, on the other hand, was clear in her evidence that no CPR was being carried out when she arrived at the cell. Furthermore, she said that she had asked the officers whether CPR had been carried out before she had arrived and had been told that it had not been, as they had thought that Mr Adam was still breathing.

[44] There is therefore a stark dispute of fact on a matter of considerable importance. If Mr Blair was wholly correct in her evidence it would suggest, at worst, that four prison officers, notwithstanding their first aid training, made no attempt to administer CPR throughout a period of 7 to 8 minutes during which, on their evidence, they were aware that Mr Adam had stopped breathing. Again, given finding in fact 40 above, such a failure may well have made a material difference to Mr Adam's chances of survival. It would have meant that by the time he was given an electric shock by Ms Blair at around 02:06 he would (on my findings) have been in ventricular fibrillation for at least 11 minutes without any CPR having been performed, which on the statistics would give him a zero or near zero chance of survival.

[45] Had the CCTV been available, even though it would not have shown the inside of Mr Adam's cell, it would likely have shown whether prison officers were in the cell and so attending on him during the relevant period. It was plainly a small cell without room for all the officers at one time. The officers' evidence suggested that the door was open at this time. The picture which I got was that they performed chest compressions in shifts, so the CCTV would likely have shown – if their evidence was truthful – officers coming in and out of the cell as they exchanged responsibility for carrying out the chest compressions over the period between 01.58 and 02.05. Alternatively if the picture which Ms Blair suggested was correct, the CCTV might simply have shown the officers standing around outside the cell waiting for the ambulance to arrive, watching over Mr Adam in the belief that he was still breathing.

[46] I find it concerning, in all these circumstances, that the Crown initially did not even intend to call Ms Blair as a witness, and it was only at my insistence that it later did so.

[47] Given the starkness of the factual dispute between Ms Blair and the officers on this point, I gave careful consideration to whether someone was being untruthful. On behalf of the SPS and the officers it was suggested that the discrepancy in the accounts could be attributed to honest mistakes made in relation to recollection of events which took place very quickly and under considerable stress. On the other hand, as I pointed out in the course of submissions, while the officers were unfamiliar with events such as those that took place that night and so may have been stressed by them, Ms Blair

presented as an experienced and cool headed paramedic, used to such circumstances, and to working under the pressure which they involve.

[48] Ultimately, however, and with some hesitation, I do not accept that either Ms Blair or the officers were being untruthful on this matter. I am prepared to accept, on the available evidence, that the most likely explanation for the discrepancy in the accounts is that there was a miscommunication in the heat of the moment, leading to a misunderstanding of what had happened on Ms Blair's part. Mr Saunders in particular I thought to be a truthful witness, and I simply do not accept that he, in particular, would have stood idly by after 01:58, with all his experience in first aid, in effect allowing Mr Adam's condition to deteriorate for want of CPR.

[49] I therefore accept that the prison officers did start CPR after the code blue was called at 01.58 and continued to do it throughout the period until Miss Blair arrived. As Mr Saunders suggested, it is possible that CPR was not being done at the precise point that Ms Blair entered the cell. This may have been because it was stopped in order to allow her entry into what was, as already stated, a small cell. Insofar as the officers were then asked by Ms Blair about whether CPR had already been done, I think it most likely that their answers were referable to the period between them finding Mr Adam unconscious at 01.55, and the calling of the code blue at 01.58. In other words, it may have been that they were seeking to indicate to Ms Blair that no CPR had been done between these times because they then believed that Mr Adam was still breathing, rather than that no CPR had been done at all prior to her arrival.

Defibrillators, and when to use them

[50] Extraordinary as it now seems to me, the Crown's intention at the outset of this inquiry was apparently to lead no evidence in relation to the presence or absence of defibrillators within Glenochil, let alone any evidence as to the training of prison officers in relation to when or how to use them. It was Mr Saunders, on the first day of the inquiry, who unexpectedly volunteered evidence about the lack of access by nightshift staff to a defibrillator which he thought had been locked in the nurses' room in the prison. He also said that it was only coincidentally that he had been trained in the use of such a device, and that this was not part of standard SPS first aid training for prison officers. This evidence is now reflected in finding in fact 41. Mr Saunders offered the thought that it might have made a difference for Mr Adam had a defibrillator been available at the time. But notwithstanding this evidence both the Crown and SPS still then moved me to close the inquiry and make no formal findings.

[51] As already noted, I was not willing to do so. Instead, I asked the Crown to identify a suitably qualified medical expert to report on whether or not, had a defibrillator been available to the prison officers, this might have made a difference to Mr Adam's death. As a result of this request Dr Jacob reported on this matter also, and later gave oral evidence on it. I accepted this evidence, which was essentially unchallenged, and have made findings in fact which reflect it, in particular findings 31 to 40.

[52] The first point that emerges from this chapter of Dr Jacob's evidence is that from the time that Mr Adam collapsed into unconsciousness he was very likely to have been

in ventricular fibrillation. There was no other medical reason apparent as to why he would have become unconscious, in Dr Jacob's view. Therefore from the point of his becoming unconscious Mr Adam's heart was no longer pumping normally and he was no longer breathing normally. Dr Jacob's evidence, in particular as set out in finding in fact 40, was that without CPR and then defibrillation Mr Adam would inevitably die within a very short time thereafter: the longer the period of unconsciousness, the lower his chance of survival. From Dr Jacob's evidence it can been taken, in principle, that had defibrillation been carried out by the prison officers earlier than it was in fact carried out by Ms Blair, Mr Adam's chances of survival would likely have been greater.

[53] I say 'in principle' because Dr Jacob's opinion evidence on this matter falls to be applied in the light of my findings in fact on the timings as to (i) when Mr Adam was first found to be unconscious in his cell, (ii) when he was first given CPR, and to a lesser extent (iii) when he was first shocked by Ms Blair. I have now determined these to be 01.55, 01.58, and 02.06 respectively. So assuming that Mr Adam became unconscious at or shortly before he was found by the officers at 01.55 (and even accepting that it might have been a minute or so before that), and assuming also that the prison officers had been able to defibrillate him within say five minutes thereafter, it is apparent that his chances of survival would have been significantly improved. The statistics are of course not precise, and will vary from individual to individual. But very broadly, assuming a near to 100% chance of survival if (theoretically) defibrillation had been carried out at 01.55, there would still have been around a 50% chance of survival if it had been carried out five minutes later, at 02.00, as compared with the significantly lower chance of

survival when it was in fact done at 02.06. Accordingly had the prison officers been able to defibrillate Mr Adam at around 01.55 I am satisfied that there is a serious possibility that his death might have been avoided.

[54] However in order for the prison officers to have defibrillated Mr Adam within five minutes of finding him unconscious two things were necessary. In the first place they would have had to have had ready access to a defibrillator, that is, one located at a place within a couple of minutes travel from, and then back to, Mr Adam's cell. In the second place they would have needed to have had training in how, and when, to use it. Neither was in fact present.

[55] As regards access, by the time of the second hearing Mr Higgins had conceded that Mr Saunders had essentially been correct to think that at the relevant time there had been a defibrillator in the nurses' office but that it was locked in a cupboard at night, and so not accessible to night shift prison officers. Given this it was unnecessary to explore whether the nurses' office was within a couple of minutes travel of Mr Adam's cell. The defibrillator was simply not accessible, regardless of how close it was located to the cell. For the same reason it was not necessary to identify whether the nurses' defibrillator was or was not an AED. But I still cannot avoid recognising the grim absurdity of locating a defibrillator in the prison, but then locking it in a cupboard at night. Such a practice encourages the cynic to ask, rhetorically, whether it was decided that prisoners should only have heart attacks during the day.

[56] As regards the officers' training, again there appeared to be no dispute that as at the relevant time prison officers, even first aiders, were not routinely trained in the use

of defibrillators. This seems clear, although I was not provided with the content of the first aid training which Mr Smith and Mr Saunders spoke about having been provided to SPS staff. Mr Higgins did not challenge Mr Saunders' evidence that his knowledge of how to use a defibrillator was due to an additional voluntary course which he had taken, over and above the standard SPS first aid course.

[57] However as Dr Jacob explained, little training is in fact required in the actual use of an AED. Such devices are designed with the intention that they can, if necessary, be used by a member of the public with little or no training at all. The more important training issue, particularly in the circumstances of the present case, emerged from Dr Jacob's oral evidence in relation to identifying *when* it is appropriate to seek to use a defibrillator. The critical issue, as Dr Jacob said, is to identify whether the patient's loss of consciousness results from loss of proper heart function and breathing, or (for example) a simple faint. Important to this is to be aware of the possibility of agonal breathing, and not to be deceived by this (another 'false friend' for Mr Adam, as Mr O' Reilly put it) into believing that the unconscious person still has normal cardiac and respiratory function when in fact he does not and is in urgent need of defibrillation. This should be clear from the absence of a pulse, so if in doubt an attempt should be made to take a pulse.

[58] The evidence does not satisfy me that the prison officers' first aid training had provided them with proper understanding of these matters. Neither Mr Smith nor Mr Saunders suggested otherwise. Mr Smith said that he had never heard of agonal breathing, yet he had been on a refresher first aid course only six months before Mr

Adam's death. Mr Saunders was a first aid instructor, but although he had heard of agonal breathing he did not know what it meant. Both thought that Mr Adam was still breathing when they found him unconscious, but I am satisfied on their description of the sounds that he was making at this time, and on Dr Jacob's evidence, that they were wrong.

[59] On the face of it therefore, making defibrillators accessible to night shift prison officers in Glenochil, coupled with training in recognising both when and how to use them, were precautions whereby Mr Adam's death might have been avoided. If the officers had been aware that he was – or at least might be – breathing agonally, and had known to try to take a pulse, they would have found that his heart had stopped beating properly. Had they then been able to readily access a defibrillator they would have done so, Mr Saunders in particular, and would have used it to give a shock to Mr Adam. They would have been able to do so a critical few minutes earlier than Ms Blair was in fact able to.

[60] Notwithstanding all this, Mr Higgins continued to seek to resist any findings under section 6(1)(c) of the 1976 Act. He submitted, in essence, that the prison officers could not be criticised for failing to recognise that Mr Adam was in ventricular fibrillation. They were experienced first aiders and they acted consistently with their first aid training, which came from reputable manuals such as the St John's Ambulance Service. Therefore, he submitted, the recognition of agonal breathing is beyond the competency of a first aider and requires the knowledge, expertise and experience of a medical professional such as a paramedic – or nurse. Absent this knowledge, the mere

provision of an accessible defibrillator would not have made any difference to the death because the prison officers would still not have known that it was necessary to fetch it and use it.

[61] In my view this is an untenable position. I do not accept that there is anything which I have heard about in this case as regards recognising the need to use a defibrillator (agonal breathing, the need to take a pulse) which could not have been taught to prison officers through appropriate training. If criticism is due therefore, it is not of the prison officers but of the training – or lack of it – which SPS had given them. If the standard manuals do not include training on when and how to use a defibrillator, then SPS should include further training to this effect. Of course, the issue of provision of defibrillators for use by prison officers and training in how and when to use them go hand in hand. If defibrillators are not provided, there may seem little point in training officers in the use of them. On the other hand, if it would have been a reasonable precaution to provide defibrillators, it is plainly also reasonable to provide the necessary training as well.

[62] I would add that such training is necessary not only for the prisoners, but also for the prison officers themselves. As Mr Gibson submitted on behalf of the SPOA, if prison officers are not given the necessary training and resources they are being placed in a situation where, as here, they potentially face both personal criticism and personal trauma in the event that they have been unable, despite their best efforts, to prevent the death of a prisoner. That is an unfair and heavy burden for officers to bear. As I understood Mr Gibson, prison officers within the SPOA are not unwilling to receive

enhanced training in the light of the matters canvased in this inquiry, but are unhappy about being placed in a situation where they are being asked to take responsibility for the consequences if such training is not given. I consider that these are points well made.

[63] In the light of all this, therefore, I conclude that the provision of readily accessible defibrillators in Glenochil, coupled with training of night shift prison officers in relation to when and how to use them, were precautions whereby Mr Adam's death might have been avoided. Moreover they were in my view precautions which were reasonable. As for provision of AEDs, I am satisfied on the evidence that these are mass produced and relatively cheap items, now found in many public places and employment premises. I am satisfied that they could reasonably be placed in prisons at such locations and in such numbers that with reasonable haste one could be retrieved and brought to any prisoner's cell within around five minutes of becoming aware of the need to use it. Mr Higgins did not suggest otherwise. That is unsurprising, given that as discussed further below, SPS has now apparently made such provision in Glenochil and elsewhere.

[64] As for training of prison officers in the use of AEDs and recognition of when to use them, I am satisfied that this too is a precaution which was and is reasonable, and reject Mr Higgins' submissions to the contrary. In addition to what I have already said about them, these submissions are further undermined by the fact, again as discussed below, that SPS is now providing training to prison officers in the use of the AEDs which have been installed in Glenochil. I can see no good reason why that training

could not reasonably include instruction on how to identify when it might be necessary to use an AED, as informed by the circumstances of the present case.

Resusciades

[65] The matter of resusciades was again initially raised not by the Crown in examination in chief of the prison officers but was volunteered by Mr Saunders when he first gave evidence. He indicated, understandably, that none of the prison officers were prepared to perform mouth to mouth resuscitation (rescue breathing) on Mr Adam without such a device, standing the risk of infection. His evidence was to the effect that he believed that such devices had been available in the prison in the past, but not at the time of Mr Adam's death. In substance he accepted that if one had been available on the night of 15 September 2013 it should have been used on Mr Adam in conjunction with chest compressions, and that he would have used it. Again this was evidence which the Crown did not seek to explore further until I asked it to do so.

[66] As Dr Jacob later explained, and I accepted, rescue breathing, while not essential to successful CPR by chest compression, may optimise the chances of a patient's survival. As he said, and I have accepted, it may in some cases contribute slightly to the effectiveness of CPR, and thus the length of the period of time within which the patient's life may be saved by restoration of normal heart rhythm through defibrillation. In any event if rescue breathing can be done in conjunction with chest compressions, it should be. It is noteworthy that Ms Blair quickly intubated Mr Adam after arrival at the cell,

which is in effect another means of providing rescue breaths. She would presumably not have done so unless she thought that it might have some additional beneficial effect.

[67] By the time of the second hearing of evidence parties appearing had agreed by joint minute that Crown Production 22 was a list of the contents of 'crash packs' contained within Glenochil. This notes that two resusciades are contained within such packs. However there was no agreement as to whether such a pack was accessible to the prison officers on the night of 15 September 2013, nor whether at that time it contained resusciades. Mr Saunders, on being recalled to give evidence, was adamant that although the crash packs do now contain resusciades, they did not at the time of Mr Adam's death. He said that he would have 'bet his pension' on this. Indeed he maintained that at that time the packs were not really 'crash packs' anyway, but more first aid kits with bandages and plasters, etc.

[68] It will hopefully be already apparent that I found Mr Saunders to be a generally credible and reliable witness, and whose candour with the inquiry is to his credit. I therefore accept his evidence that the crash packs at the time did not contain resusciades. But even if I was wrong about that, it is as significant that Mr Saunders, an experienced Glenochil prison officer and first aid instructor, believed that they did not, and thus that he believed that there was no resusciade available by which rescue breaths could be given to Mr Adam in the critical minutes before Ms Blair arrived on the scene.

[69] When Mr Smith was recalled to give evidence at the second hearing, matters were further confused by his volunteering for the first time that when he returned to Mr Adam's cell after his collapse he did in fact have a resusciade with him, but that he did

not seek to use it nor to tell the other officers that he had it. He seemed to suggest that he did not see the need to use it because he was not actually doing the CPR himself. He also said that he could not recall whether the other officers were doing mouth to mouth resuscitation. I regret to say that I found this explanation to lack credibility and to further confirm my rather poor opinion of Mr Smith's evidence as a whole. From his first aid training he should have known that rescue breaths should ideally be given to Mr Adam, and that without a resusciade they could not be. His evidence suggests some ignorance of this training. But in any event it makes no sense for him to have taken a resusciade to the cell only to then to fail to check – as the senior officer present – whether the officers actually performing the chest compressions had a resusciade and were using it to give rescue breaths to Mr Adam. Even allowing for the heat of the moment I cannot avoid criticising Mr Smith for failing to do so. As Mr Saunders made clear, had he known that Mr Smith had a resusciade he would have used it to give rescue breaths to Mr Adam.

[70] Accepting therefore that Mr Saunders and the other officers did indeed perform chest compressions on Mr Adam in the period between the calling of the code blue at 01.58 and the arrival of Ms Blair at between 02.05 and 02.06, they did so without being able to give him rescue breaths for want of a resusciade. That arose because Mr Smith, who had such a device, did not tell the other officers that he had it when he should have done. But for that, Mr Adam would have been given rescue breaths by Mr Saunders during this critical period, which would have optimised the CPR that he was being

given. This may have contributed slightly to its effectiveness and so increased Mr Adam's chance of survival.

[71] That said, however, I am not satisfied that the failure to give Mr Adam rescue breaths during this period, in itself, was a reasonable precaution by which his death might have been avoided. On Dr Jacob's evidence the likely increase in effectiveness of CPR where rescue breaths are used is slight, as a matter of generality, and in any event it is not possible to ascertain in isolation what, if any, difference it would have made in Mr Adam's case. Therefore I cannot be satisfied that had he been given rescue breaths via a resusciade that there would have been, for this reason only, a serious possibility that his death might have been avoided.

[72] Having said that of course, and accepting as agreed that crash packs with resusciades are now available in Glenochil, there may well be a training issue for SPS to address in the light of the prison officers' evidence in this case. They plainly need to have training sufficient to enable them, in an emergency, to locate a resusciade and to know why and how to use it. If there is ignorance among first aid trained prison officers on those matters – and Mr Smith's evidence in particular did nothing to inspire confidence about this – then the content and the intensity of the relevant training should be reviewed and upgraded accordingly.

SAS and the actions of the first responder

[73] I will come on to the issue of night time nursing cover in Glenochil shortly, but accepting the absence of it on the night in question, and thus that the prison officers had

to call for an ambulance, the question arises as to whether there were any reasonable precautions which SAS could have taken by which Mr Adam's death might have been avoided. In this respect Mr Pugh, in his submissions for SAS and FVHB, took as his starting point that Mr Adam had been found unconscious by Mr Smith and Mr Saunders at 01.50, as Mr Smith had said in evidence, but that SAS had not been called until almost 01.57. He invited me to find that Ms Blair had arrived at Mr Adam's cell at around 02.05, that is, within the SAS target time of 8 minutes. However he submitted that whether or not this target time was met was, in the circumstances, beside the point. Firstly, that was because Ms Blair could not reasonably have got to Mr Adam any quicker than she did. Secondly it was because even by 02.05 his chances of survival through defibrillation were – on Dr Jacob's statistics and given the 15 minutes that he would by this time have spent in ventricular fibrillation – zero.

[74] For the reasons given above I was unwilling to accept Mr Smith's evidence fixing the finding of Mr Adam unconscious at 01.50, finding instead that it was likely nearer to 01.55. But I have accepted Ms Blair's evidence that she did reach Mr Adam at around 02.05, that is, within around 8 minutes of the call to SAS from Glenochil control room. And I also accept the submission that, as far as Ms Blair's actions were concerned, she could not reasonably have got to Mr Adam any quicker than she did. She responded to the call immediately, and was by chance parked within a short drive of Glenochil. Indeed almost half the eight minutes her journey to Mr Adam took was spent getting from a point 200 metres from the prison and through security to the side of Abercrombie Hall, but this was not her fault. Once she arrived in the cell she did everything she

could to try to save Mr Adam's life, and I am entirely satisfied that her actions in this regard were appropriate and promptly and competently executed. That she was unsuccessful does not mean that she, or SAS generally, could have taken any reasonable precaution by which the death might have been avoided. Even on my finding that Mr Adam was first found unconscious at 01.55, he would have been in ventricular fibrillation for at least 11 minutes by the time Ms Blair was able to shock him. Even then, and even accepting that CPR was carried out between 01.58 and 02.05, Mr Adam's chances of survival were poor.

[75] In these circumstances, there are no good grounds to make any finding under section 6(1)(c) in relation to SAS or the first responder Ms Blair.

The absence of night time nursing provision at Glenochil

[76] The absence of night time nursing cover at Glenochil was a further, obvious, issue which I raised on the first day of the hearing of the inquiry. I had heard evidence that Mr Adam had first presented with chest pain during the day on 23 August 2013, at which time he was attended on by a nurse within a couple of minutes of her being called. Similarly, the following day, a nurse was able to quickly attend on Mr Adam on his further complaining of chest pain, to give him aspirin, and to call an ambulance. Had Mr Adam gone into ventricular fibrillation on either occasion the nurse would have had access to a defibrillator, and would by virtue of her qualification have known of the need to use it and how to do so. So why, I asked, was there no nurse on duty when Mr Adam had his fatal cardiac arrest during the night on 15 September 2013? Had there

been one on duty, it seems likely that she would have been called to Mr Adam's cell by the prison officers, at 01.55 if not before. By virtue of her training she would likely have recognised that he was in ventricular fibrillation. She would have had access to a defibrillator and would have known how to use it.

[77] Yet again, it appears that this was an issue which the Crown had not initially intended to address in this inquiry. On my having raised the issue I was told by both Miss Smith and Mr Higgins that since 2011 provision of medical and nursing services at Glenochil had been the responsibility of the National Health Service, and that the absence of night time medical staff on duty was an attempt to reflect the position of patients within the community. In my note of 24 November 2015 I queried whether the position of patients in prison is properly comparable to the position of patients in the community. In any event, I indicated that I considered that this was something on which I should hear evidence, rather than merely submissions. It was presumably this request in particular which prompted FVHB to subsequently enter an appearance in the inquiry.

[78] Following a procedural hearing on 4 July 2016 Mr Pugh provided a Note of FVHB's position dated 15 August 2016 in relation to the question of overnight nursing at Glenochil. He drew attention to and relied upon a statement which had been obtained from Dr Andrew Fraser on 7 January 2016.

[79] Dr Fraser had previously been director of Health and Care at SPS. As he explained in his statement, a policy decision had been taken, following reviews in 2003 and 2004, to close all in-patient facilities within Scottish prisons including Glenochil. Having removed the inpatient facilities, there was no longer any necessity for any

medical and nursing staff to be in the prison overnight. The underlying policy intention, Dr Fraser states, was to adopt a model of health care for prisoners that was the equivalent of patients in the community. In the judgement of SPS the reviews had shown that the health needs of prisoners did not justify inpatient facilities, that these facilities were being inappropriately used for non-health purposes, and that patients' stays in them were inappropriately lengthy. It was felt that more effective use of resources elsewhere could result in a service that better met health care needs of all prisoners, day and night. In the light of all this, from 2011 onwards responsibility for prisoners' healthcare was transferred by SPS to the NHS, and medical and nursing staff ceased to be on duty at Glenochil overnight.

[80] In effect, Mr Pugh in his Note submitted that further inquiry into this matter was unnecessary and inappropriate. The decision to remove night time nursing provision was a strategic policy decision, made in the light of detailed reviews, and with a view to optimising use of limited resources in the best interests of prisoners' healthcare needs generally. Were I to take a different view, there would be knock-on effects in relation to resources and potentially an adverse effect on the daytime care of prisoners. Dr Fraser's evidence could and should be simply agreed, and no further evidence beyond this was necessary.

[81] In response, I indicated that it had not been my intention, in raising the matter, to seek to review or criticise the strategic decisions which SPS had taken in relation to closure of the inpatient facilities and the consequent removal of night time nursing staff from Scottish prisons. I could see that this might well widen the scope of the inquiry

well beyond that which was appropriate. I indicated that I was therefore satisfied that Dr Fraser's statement could simply be entered in evidence, whether by way of being turned into an affidavit, or simply agreed by joint minute. On the other hand it seemed to me that this did not preclude consideration of what I anticipated would be a narrower question of whether or not the provision of a nurse on duty on the night of 15 September 2013 was a precaution by which Mr Adam's death might have been avoided.

[82] However when Mr Pugh came to make submissions at the conclusion of the inquiry it occurred to me that I may well have been wrong to assume that the strategic and the individual questions could really be separated as I had earlier thought. That is because section 6(1)(c) refers not merely to "precautions", but to "reasonable precautions". In effect, Mr Pugh's position came to be that in the light of Dr Fraser's unchallenged evidence as contained in his statement it was simply not open to me to find that it would have been a reasonable precaution to have had night time nursing cover at Glenochil, in 2013 or since. Dr Fraser's evidence and the evidence of the various reviews on which it was based went entirely the other way, there was no good ground to reject this evidence, and there was no evidence to the contrary. Further, if a nurse were to be on duty in the prison at night, her sole function would be to attend to very infrequent events such as happened on the night in question (Dr Blackmore's evidence reflected at finding in fact 26 above is in point here), which would not be an appropriate use of resources.

[83] I am not sure that Mr Pugh's submission is entirely well founded as a matter of evidence. If I were to accept the logic of Mr Higgins' position, in effect that it is not

reasonable to expect a prison officer to know when it is necessary to seek to use a defibrillator, in principle think that it would have been open to me to reject Dr Fraser's evidence and find that it was a reasonable precaution to have a nurse on duty at night. Otherwise the situation would be to accept that it is not reasonable to expect either SPS or FVHB to have staff on duty at Glenochil at night capable of recognising that Mr Adam was in ventricular fibrillation on the night of 15 September 2013. I would certainly have hesitated to reach such a conclusion. However as I have rejected Mr Higgins' position, and am satisfied that appropriate training of prison officers in identifying the need for defibrillation is a reasonable precaution whereby Mr Adam's death might have been avoided, I am content to accept Mr Pugh's position, and Dr Fraser's evidence. In doing so I acknowledge that issues of allocation of resources figure large in Dr Fraser's justification for the policy, and that I should hesitate to make a recommendation which may require a reallocation which may involve costs as well as benefits for the health care of prisoners generally, both at Glenochil and elsewhere.

[84] However I cannot resist recording my view that the underlying policy objective identified by Dr Fraser, namely that emergency health care for prisoners overnight should replicate the position of non-prisoners in the community, is of questionable validity. Put simply, it seems to me that the position of prisoners and non-prisoners is not properly comparable in this context. Mr Pugh submitted that a person in the community, at night, would if taken ill rely on calling an ambulance and its attending promptly, and that this was replicated for prisoners by the present policy. But a person in the community does not have to wait for an ambulance. They can go themselves to

the hospital if they wish. And in any event, a decision to call the ambulance is theirs alone. For a prisoner, by contrast, the decision to call the ambulance is not his, but that of the prison officer. If the officer does not call an ambulance, because for example he fails to recognise the severity of the prisoner's condition, the prisoner cannot take then himself to the hospital. And even the time which it takes for the ambulance to reach the prisoner and non-prisoner may be different. In the present case, as noted, nearly half of Ms Blair's eight minute journey to Mr Adam was taken up in getting through prison security at Glenochil (see finding in fact 57). Such differences arise, it seems to me, as inevitable aspects of the loss of liberty consequent on imprisonment, and undermine the plea to equivalence on which Dr Fraser's evidence is based.

[85] But ultimately these are no more than observations. For the reasons already outlined I am satisfied that prison officers, with appropriate training, should be able to recognise the need for defibrillation of a prisoner in Mr Adam's condition and, with appropriate resources, should be able to carry out such defibrillation within five minutes of having done so. That being so, and standing the available evidence in this inquiry, I am not prepared to find that provision of night time nursing at Glenochil is a precaution which is all the circumstances reasonable in terms of section 6(1)(c), albeit that in theory it is a further precaution whereby Mr Adam's death might have been avoided.

Whether there was a defect in any system of working which contributed to the death: 1976 Act, section 6(1)(d)

[86] In my view there was no defect in any system of working which contributed to the death. There is some overlap between issues which might have arisen under this heading and those which I have considered under section 6(1)(c). However I accept the joint submission of parties to the effect that given the higher standard of proof that applies in relation to the test of causation in section 6(1)(d) it would not be appropriate to make any formal finding under this provision. Put another way, even if at least some of the issues already outlined can be seen as falling within a system of working, I am not satisfied that it can be said on a balance of probabilities that they did in fact cause or contribute to the death.

Whether there are any other facts relevant to the circumstances of the death: 1976 Act, section 6(1)(e)

[87] In my view it is not necessary or appropriate to make any further formal recommendations under section 6(1)(e).

[88] It is however relevant that I record that since Mr Adam's death, significant changes have already been made as regards the provision of AEDs in Glenochil and the training of prison staff in relation thereto. These changes are as set out in findings in fact 74 to 77 above. They are plainly welcome. I have not seen the training materials now used by SPS in training prison officers in the use of AEDs so can make no formal recommendations in relation to the specific content of this training. But, and for the reasons discussed above, it is important that prison officers are trained not only how to

use these devices, but also how to identify when it may be necessary to do so. A review of the content of the training in the light of the findings of this inquiry would therefore seem appropriate.