CORONERS ACT, 2003

SOUTH *AUSTRALIA*

FINDING OF INQUEST

An Inquest taken on behalf of our Sovereign Lady the Queen at Adelaide in the State of South Australia, on the 30th day of November, the 1st, 2nd, 3rd, 4th and 9th days of December 2009, the 22nd, 23rd, 24th, 25th, 26th, 29th and 31st days of March 2010, the 13th, 14th, 15th, 16th, 27th, 28th, 29th and 30th days of July 2010, the 11th day of August 2010, the 2nd and 3rd days of September 2010 and the 28th day of March 2011, by the Coroner's Court of the said State, constituted of Mark Frederick Johns, State Coroner, into the death of Vera Allan.

The said Court finds that Vera Allan aged 81 years, late of 14 Oval Road, Victor Harbor, South Australia died at Flinders Medical Centre, Flinders Drive, Bedford Park, South Australia on the 26th day of November 2008 as a result of severe cardiogenic shock complicating cardiac surgery. The said Court finds that the circumstances of her death were as follows:

1. Introduction and reason for Inquest

1.1. Mrs Allan was 81 years old at the time of her death. She underwent an elective aortic valve replacement due to a general decline in her health and the results of a coronary angiography that revealed that she was suffering from complete occlusion of her right coronary artery and a 40% occlusion of the left coronary artery. She was advised that without the operation she may have had a life expectancy of only some 18 months to 2 years. If the operation was successful this estimation would significantly increase.

1.2. Mrs Allan was referred to cardiac surgeon, Mr John Knight, by Dr Geoffrey Evans, her cardiologist. Mrs Allan's operation occurred on 25 November 2008. She died

within 24 hours of the procedure, the following morning. Her death was therefore reportable within the meaning of the Coroners Act 2003. Mrs Allan's death was duly reported by a Dr Soumya Ray, a registrar in the ICU at Flinders Medical Centre. Dr Ray gave his opinion as to cause of death. It was 'severe cardiogenic shock'[1]. A pathology review was undertaken on behalf of the State Coroner by Dr Iain McIntyre. He provided reports dated 27 November 2008 and 9 December 2008[2]. As a result of those pathology reviews a finding was signed by me on 23 February 2009 giving Mrs Allan's cause of death as 'multi-organ failure due to aortic dissection complicating surgery for aortic valve disease'[3]. This Inquest has shown that cause of death was plainly incorrect. It could not be said on any view that Mrs Allan's death was due to aortic dissection.

1.3. As a result of the pathology review there was no autopsy.

1.4. For the purposes of the coronial investigation into Mrs Allan's death, matters would have rested there were it not for a letter received by the State Coroner dated 2 September 2009 from Dr Tony Sherbon, Chief Executive, SA Health. That letter is a significant document and I quote it in full:

> 'I am writing to inform you of information that has recently come to light that may possibly be relevant to the cause and circumstances of the death of a public patient, Mrs Allan.
>
> Mrs Allan died in the Intensive Care Unit of Flinders Medical Centre on the 26th November 2008 following Aortic Value Replacement surgery performed on the 25th November 2008.
>
> Mrs Allan's death was reported to the coroner at the time and in March 2009 Southern Adelaide Health Service received notification from the Department of Health Insurance Services Unit that the Coroner had given a finding on the 26th February 2009 into the death "cause of death multi organ failure due to aortic dissection complicating surgery for aortic value disease".
>
> Some additional information has recently become available during an investigation, and I believe that you may not have been fully appraised of the situation when the death was reported to you in November 2008.
>
> It is likely that any further enquires you did make at the time would not have revealed what has subsequently come to light about the surgeons that were involved in Mrs Allan's surgery.
>
> Mr Knight is the Director Cardiac and Thoracic Surgical Unit at Flinders Medical Centre. Mr Benjamin Bidstrup is a Cardiothoracic Surgeon from Queensland, who was

[1] See Exhibit C53
[2] See Exhibit C2a and C2b
[3] Transcript, page 7

being investigated by the Medical Board of Queensland. He was undertaking a voluntary supervised work program agreed by the Medical Board of Queensland, under the oversight of Mr Knight, to assess whether he should be allowed to undertake cardiac work independently in Queensland. It is understood that the supervisory arrangement was made because of the concerns held by the Queensland Medical Board about Mr Bidstrup's surgical technique, reporting of outcomes, communication skills and whether he had a health impairment at the time. Mr Bidstrup was involved and apparently took an active part in Mrs Allan's operation.

I have attached for your information the briefing note regarding Mrs Allan's operation and subsequent death at Flinders Medical Centre that was recently provided to the South Australian Minister of Health.

Below is a summary of the recently acquired information which I consider to be of relevance to you. I should emphasise that these matters are the subject of an investigation involving the Crown Solicitors, the Government Investigation Unit and the South Australian Medical Board and are yet to be conclusively established.

The matters for your further consideration are:

- Mr Knight had arranged with Mr Bidstrup and the Queensland Medical Board that he would intensively supervise Mr Bidstrup during a two week period, commencing on the 18th November 2008. (Mr Knight's supportive summary to Queensland Medical Board states that he did do so).
- The hospital management and staff within the unit were not aware of this arrangement. Indeed the staff in the unit had been informed by Mr Knight that Mr Bidstrup was a senior surgeon who was on a sabbatical.
- It appears that mandatory 'credentialling' processes were not undertaken to ensure Mr Bidstrup's suitability to be involved in the treatment of patients.
- Mr Knight apparently failed to clarify Mr Bidstrup's role in the operating theatre with the Registrar Mr Datta, this resulted in Mr Datta's assumption that Mr Bidstrup was to be regarded as the senior surgeon in the operation on Mrs Vera Allan.
- Mr Bidstrup cannulated the artery which was subsequently found to be dissected and subsequently needed grafting. No issues were identified at the time.
- Mr Knight was not present during this part of Mrs Allan's surgery, and the registrar Dr Datta and Mr Bidstrup performed the surgery until Mrs Allan's condition deteriorated. At this time, Mr Knight re-attended.
- Mr Bidstrup may have made the decision about when Mrs Allan ought to be taken off bypass.
- An inconsistency with the clinical records, in the Operation details Mr Knight is listed as the surgeon and Mr Bidstrup is listed as a team extra, but not as an assistant. The operation sheet signed by Mr Knight does not list Mr Bidstrup as being present. The nursing count record and the peri-operative nursing record list Mr Bidstrup as an assistant.

It should be noted that at the time Mr Bidstrup apparently had full registration with the South Australia Medical Board.

I have enclosed a copy of Mrs Allan's clinical notes to assist you in this matter.

I would be happy to work with you on these issues and provide any additional details and information as necessary.

Further information and particulars can be obtained from:

Dr Chris Farmer
Medical Advisor Quality, Safety and Performance
Southern Adelaide Health Service
Telephone: (omitted)
Mobile: (omitted)

Yours sincerely

DR TONY SHERBON
Chief Executive

2/9/09' [4]

1.5. As a result of this correspondence I decided that it was necessary and desirable to hold an Inquest into Mrs Allan's death. The existence of the finding made in February 2009 was no bar to the Court's jurisdiction being invoked.

2. <u>Cause of death</u>

2.1. Having heard the whole of the evidence, I have concluded that it is not possible to be definitive about the cause or causes of Mrs Allan's deterioration in surgery. The evidence does not support a finding that Mrs Allan's deterioration was the result of a tear or dissection in the left main coronary artery. Flinders Medical Centre submitted that I should find the cause of death as follows:

> 'Severe cardiogenic shock as a result of global myocardial ischaemia suffered during surgery, the cause of which cannot be determined.'

2.2. As I have already observed, the cause of death suggested in Dr McIntrye's pathology review, referring as it does to an aortic dissection, was plainly incorrect. There was no aortic dissection. The cause of death as given by Dr Ray in the report of death to the Coroner was simply 'cardiogenic shock'.

2.3. In the result, I believe that the cause of death should be as follows:

> 'Severe cardiogenic shock complicating cardiac surgery.'

I so find.

[4] Exhibit C28h

3. Mrs Allan's surgery

3.1. Pre-operative investigations

Mrs Allan had undergone a pre-operative cardiac echo which documented aortic stenosis at moderate to severe level and mild left ventricular dysfunction (ejection fraction 54%). She also had pre-operative coronary angiography. This investigation revealed coronary artery disease with total occlusion of the right coronary artery and a 40% stenosis of the left main coronary artery. A decision was made to replace the aortic valve only and not to address coronary revascularisation. This decision was regarded as appropriate by the expert witnesses, Dr Marshman and Dr Herkes. Dr Marshman commented that the decision to replace the aortic valve only and not revascularise the coronary arteries made sense in light of Mrs Allan's age and the chronic nature of the right artery occlusion and the fact that she was noted to have varicose veins, thus suggesting that it would be difficult to obtain a suitable conduit for coronary artery bypass[5].

3.2. The surgery

Mrs Allan was intubated by the anaesthetist, Mr Vaughan, at 1142 hours. Initially Mr Vaughan was present after intubation and after a while the perfusionist, Mr Baker, took over so that the heart could be stopped and operated on[6]. Subsequently the perfusionist would hand over to the anaesthetist on completion of the part of the procedure that required the heart to be stopped. The anaesthetist would then take over the sedation of Mrs Allan.

3.3. At 1204 hours the surgery commenced. Mr Knight was the surgeon, Dr Datta was in the first surgical assistant's position opposite Mr Knight and Mr Bidstrup was in the second surgical assistant's position to Dr Datta's left. These positions are significant and follow the ordinary custom and practice of surgical procedure. The position adopted by each of the surgical team was indicative of the function being performed by that member of the team. Mr Knight performed the sternotomy which is the opening of the chest. It involves a skin incision, a median sternotomy and the division of the pericardium to expose the heart. The next step as explained by Mr Knight, whose evidence as to the surgery and surgical procedure in open heart surgery generally was extremely clear and very helpful, is that the aorta is exposed. A drug

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[5] Exhibits C66 and C66a

[6] Transcript, page 196

known as heparin, an anticoagulant, is administered[7]. The incision in the aorta to accommodate the arterial cannula is made into a 'purse string' by means of appropriate stitching. The purpose of the purse string is to accommodate and seal the arterial cannula and to permit speedy closing of the aorta upon the removal of the arterial cannula.

3.4. The venous cannula is inserted in the atrium, again using a 'purse string'. Pipes are then connected to the heart-lung machine. The anaesthetist turns off the ventilator with the result that all aspects of the body's metabolism are controlled by the heart-lung machine. A clamp is applied between the arterial cannula and the heart with the result that blood is going to the body (from the heart-lung machine) but is not perfusing the heart. The heart is isolated from the circulatory system. A drug known as cardioplegia is then applied to the heart. It is introduced between the clamp and the aortic valve. The cardioplegia is administered before the aorta is opened. Once the aorta is opened, cardioplegia can only be administered by direct cannulation of the coronary arteries[8].

3.5. In Mrs Allan's case bypass started at 1222 hours. The bypass machine is a series of pumps with an oxygenator. Mr Baker said that the perfusionist has the ability to cool the patient, oxygenate the blood, pump blood back into the patient at different rates and, importantly, to administer drugs via the bypass machine. Mr Baker explained that the perfusionist answers to the surgeon and, while many actions are routine and follow ordinary protocols, major commands, for example the commands to commence and cease bypass, are given by the surgeon[9].

3.6. To complete the picture, the blood from the venous cannula drains to the heart-lung machine under gravity. The surgeon will instruct the perfusionist to open the venous line thus allowing blood to drain out of the heart into the heart-lung machine. It is possible for a patient to be on 'partial bypass' when the bypass machine is doing part of the task of circulating blood through the body and the heart itself is also participating in that process.

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[7] The use of an anticoagulant is essential to prevent blood from clotting when it comes into contact with the bypass tubing. The patient remains on anticoagulation therapy while on bypass but when removed from bypass, an antidote for heparin is delivered in order to reverse the anticoagulation effect of the heparin. The antidote is known as Protamine.

[8] Transcript, page 1982

[9] Transcript, page 377

3.7. At 1224 hours Mr Knight introduced cardioplegia by direct injection into the aorta, which at that stage had not yet been opened. That process took approximately two minutes[10].

3.8. Having administered cardioplegia Mr Knight then proceeded to open the aorta to gain access to the aortic valve. He cut out the aortic valve and then set about the process of debriding calcium deposits around the rim of the aortic valve, or the annulus. The debridement of the calcium is a delicate and important part of the operation. The calcified material needs to be removed with great care to ensure that it does not, as it were, fall back into the heart. There is a great danger that if that were to occur, the solid calcified material would have the potential to enter the coronary arteries, with the inevitable effect of blocking them and causing, at the very least, severe damage to the heart muscle and, at worst, a myocardial infarction.

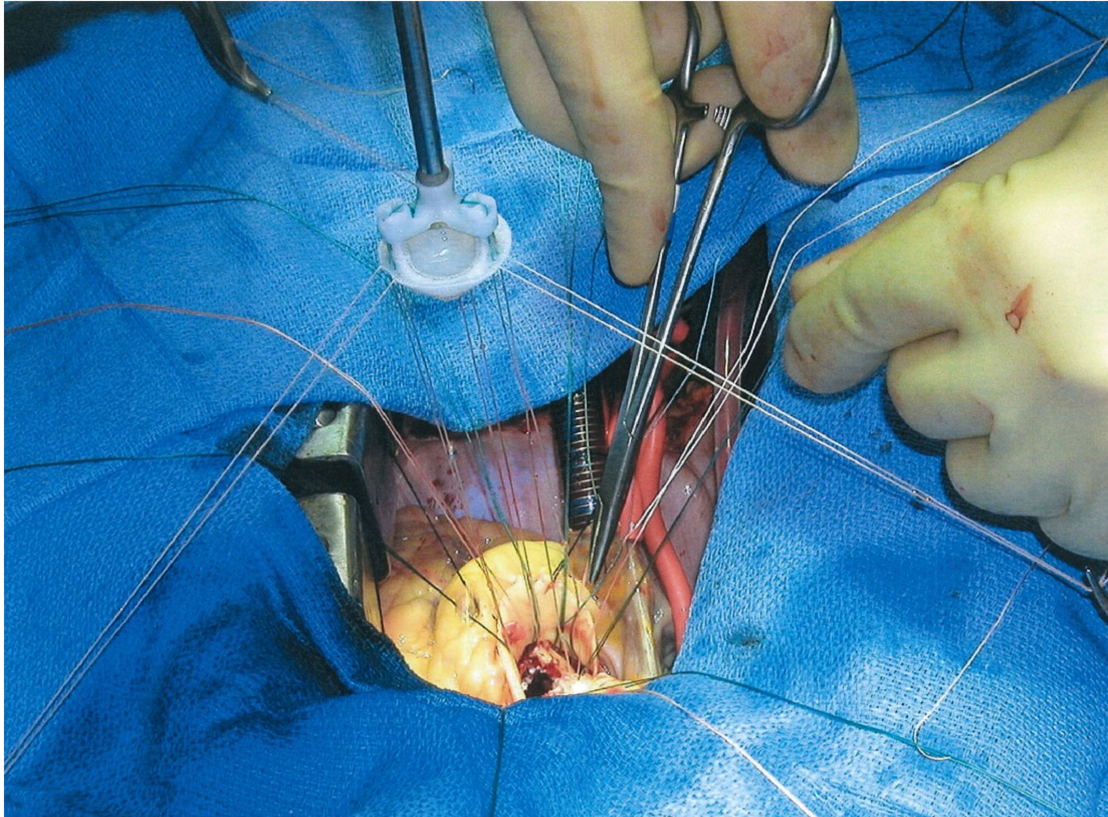
3.9. Having debrided the annulus of the aorta, the next step was for Mr Knight to size the valve, by which I mean that he would choose from the various sizes of replacement valve available to him in order to achieve the best fit for Mrs Allan. Mr Knight then proceeded to insert one or more stitches of the 13 or so stitches required to attach the replacement valve to the annulus of the aorta.

3.10. Dr Datta takes over from Mr Knight

At that stage, Mr Knight asked Dr Datta if he was happy to complete the operation and Dr Datta agreed that he was. Mr Knight then left the operating theatre to unscrub but he remained in the vicinity to observe Dr Datta unobtrusively. He noted that Dr Datta appeared to be relaxed and was operating well[11]. Mr Knight then left the vicinity of the operating theatre and went to his office. Dr Datta moved to the position of surgeon and Mr Bidstrup moved to the first surgical assistant's position opposite Dr Datta[12]. At this stage Dr Datta's role was to complete the sewing in of the replacement valve. The 13 or so stitches that are inserted into the annulus are all inserted prior to the valve being lowered onto the annulus to complete the process. The stitches are brought up from the annulus to the valve which is suspended some 150 to 200mm above the exposed aorta by means of a device in the nature of a 'jig' which holds the valve perpendicularly above the exposed annulus ready for

[10] Statement of Mr Knight, paragraph 13.4
[11] Statement of Mr Knight, paragraphs 14.3 and 14.4
[12] See the evidence of Nurse Thompson, Transcript, page 1140

placement. The stitches are then placed through the valve itself and the valve is ultimately lowered down the stitches to complete the seal to the annulus[13].



3.11. Mr Bidstrup gave evidence that he may have assisted Dr Datta by cutting stitches or pulling bits of stitch out that had been cut[14].

3.12. At 1254 hours Dr Datta administered further cardioplegia by means of an ostial cardioplegia cannula. It was necessary to give a second dose of cardioplegia because Dr Datta was running out of time in which to complete the stitching of the replacement valve. There was nothing irregular or unusual in the need to administer further cardioplegia. The evidence showed that Mr Knight is extremely quick as a surgeon and probably would not have needed to have administered a further dose of cardioplegia. On the other hand, it is not unusual for a competent and skilful cardiac surgeon to take longer than Mr Knight, and it is no reflection on Dr Datta that there was a need to give a second dose of cardioplegia. Dr Datta explained that the second dose is given by holding the cannula in the coronary ostium[15] and the perfusionist runs the cardioplegia through a pipe connected to the cannula[16]. Dr Datta stated that it was he who introduced the cannula into the left coronary artery. He said that he had tried

[13] Exhibit C45a - photograph that shows the process very well
[14] Transcript, page 1646
[15] The opening of the relevant coronary artery
[16] Transcript, page 519

to give the cardioplegia into the right coronary artery but it was completely blocked. Therefore he gave the cardioplegia by inserting the cannula into the ostium of the left coronary artery. Dr Datta gave evidence that during this process Mr Bidstrup might have held the cannula after he, Dr Datta, had put it into position[17].

3.13. Dr Datta said that placing the cannula into the ostium is a task that is always performed by the surgeon. He said that it is physically easier for any insertion of a cannula into the left ostium to be done from the surgeon's position in that it is easier to see from that position and physically easier to carry out the process. By contrast, from the assistant surgeon's position, the assistant would either have to use his left hand or do it by 'back hand' and that it would be 'highly inappropriate' for him to even try it[18].

3.14. Dr Datta emphasised that he was absolutely sure that he gave the second dose of cardioplegia[19]. He said that is the surgeon's job and it is easier for a person in the surgeon's position to see and give it[20].

3.15. For his part, Mr Bidstrup stated that Dr Datta did this cannulation[21]. He said he was almost 100% certain that Dr Datta did it and that he himself had no recollection of doing it. Furthermore he said that he has never told any other person that he did cannulate the coronary artery and every time he has been asked he has always said that Dr Datta did it[22]. Mr Bidstrup said that he had no recollection of holding the cannula while the cardioplegia was being administered[23].

3.16. By 1320 hours Dr Datta had finished the valve replacement, had sutured the aorta and the cross clamp was taken off. Mr Vaughan returned to the operating theatre at this time. He had already drawn up the protamine to reverse the anticoagulation effect of the heparin[24]. At this point Mr Vaughan was preparing to assume control via his anaesthetic apparatus of the respiratory function for Mrs Allan as she came off bypass. The venous drain would have been removed. It was explained by Mr Baker that removal of the venous drain requires the hands of both the surgeon and the surgeon's assistant because the purse string suture has to be closed immediately the

[17] Transcript, page 521
[18] Transcript, page 531
[19] Transcript, page 707
[20] Transcript, page 708
[21] Transcript, page 1507
[22] Transcript, page 1508
[23] Transcript, page 1512
[24] Transcript, page 204

cannula is removed to avoid the consequences of having an open atrium from which blood would pour out with dire consequences for the patient[25].

3.17. Dr Datta said that before Mrs Allan came off bypass he checked to see whether any opening had been occluded during the course of the surgery by means of right-angled forceps, to see if the ostia were patent[26].

3.18. At this stage of the process the heart usually starts beating as the cardioplegia is washed out of the heart and the concentration of potassium across the cell walls gets diffused by the normal blood[27]. The anaesthetist would start gently ventilating the patient's lungs by turning up the oxygen flow on the anaesthetic machine[28]. During this period Mrs Allan was on partial bypass meaning that she was being ventilated by the anaesthetist at the same time as the bypass machine was operating. Mrs Allan was totally weaned from bypass at 1333 hours. At approximately 1335 Mr Vaughan injected protamine into one of the lines as bypass had ended. Mr Vaughan's record indicates that this occurred sometime between 1330 and 1345 hours[29]. At about this time Mrs Allan suffered a drop in blood pressure[30]. Mr Vaughan said that after the administration of protamine there was a reasonably precipitous drop in the blood pressure from 80 to 40. He explained this was indicated in his notes at the bottom of his anaesthetic record where he wrote 'query protamine reaction'[31]. Mr Bidstrup related the situation this way:

> 'Everything appeared fine for a short time after Mrs Allan was weaned from bypass. There was then a drop in the blood pressure.' [32]

Dr Datta thought that Mrs Allan was suffering from a protamine reaction[33]. Mr Bidstrup said that he believed that the heart had started to dilate which caused him to think that it was more likely to be a protamine reaction although he also considered the possibility of a volume of air having been trapped during the surgery and not excluded from the circulatory system before the process was completed. Mr Bidstrup explained that some patients get a reaction from protamine. Mr Bidstrup thought the event was less likely to have been the result of some injury to the heart - for example

[25] Transcript, page 449
[26] Transcript, page 526
[27] Transcript, page 1524
[28] Transcript, page 1523
[29] Transcript, page 206
[30] Exhibit C38, page 59
[31] Transcript, page 206
[32] Transcript, page 152
[33] Transcript, page 536

if the heart had not been sufficiently protected by cardioplegia - because the heart would not have come off bypass as smoothly initially as it did. He thought there was a good temporal association with the giving of protamine and/or the heart ejecting some air[34]. Mr Bidstrup said that after the heart dilated, Dr Datta put his hand in and squeezed it but realised that things were not going to get better very quickly[35]. At that point, according to Mr Bidstrup, it was obvious to all concerned that Mrs Allan had to go back on bypass. Mr Bidstrup said that he deferred to Dr Datta but it may have been either Dr Datta or himself who had said words to the effect of 'we need to go back onto bypass' and for Mr Vaughan to readminister heparin. Mr Bidstrup thought that it was probably Dr Datta who issued the instruction and repeated that he did defer to Dr Datta[36].

3.19. At 1355 hours Mrs Allan's blood pressure was recorded as being down to 40. Mr Knight was called back to theatre at approximately that time. On his return he observed Dr Datta in the surgeon's position and Mr Bidstrup in the first surgical assistant's position[37]. Mr Knight noted that Mrs Allan's blood pressure had recently gone as low as 40 and he decided also that Mrs Allan should go back on bypass[38]. It was Mr Baker's opinion that it was Mr Knight who gave the instruction to go back onto bypass[39].

3.20. At 1400 hours Mrs Allan's blood pressure was recorded as being as low as 30. Probably in response to this at approximately 1400 hours, Mr Vaughan administered a dose of adrenaline[40]. At 1405 hours Mrs Allan's blood pressure came back up sharply spiking to 150 to 200. By 1410 hours her blood pressure was back to 80. During the bypass Mrs Allan's heart was defibrillated by Mr Knight and gradually Mrs Allan was weaned from bypass once again. Bypass stopped at 1411 hours but was recommenced at 1413 hours when further instability occurred[41]. Mr Knight decided to insert an intra-aortic balloon pump on the basis that Mrs Allan had either suffered a

[34] Transcript, page 1531
[35] Transcript, page 1532
[36] Transcript, page 1533
[37] Statement of Mr Knight, paragraph 21.2
[38] Statement of Mr Knight, paragraph 15.4
[39] Interview of Mr Baker, Exhibit C44, paragraph 13.9
[40] Transcript, page 269
[41] Statement of Mr Knight, paragraph 15.6

protamine reaction (which would pass in time) or that she had air in her coronary arteries[42].

3.21. The intra-aortic balloon pump was inserted at about 1415 hours[43]. The intra-aortic balloon pump remained in place for the rest of the surgery and was insitu when Mrs Allan was transferred to the ICU[44].

3.22. At 1428 hours bypass was ended.

3.23. At 1430 hours Mr Knight decided, in consultation with Mr Vaughan, that Mr Vaughan would insert a transoesophageal echocardiograph (TOE) in an effort to determine why there had been a blood pressure drop. The TOE would provide imaging to check the replacement aortic valve and whether it was correctly positioned or leaking and otherwise to ensure it had not been the cause of the problems[45]. The pictures that returned from the TOE established that the valve was working well[46]. A report of the operation of the TOE was prepared afterwards[47]. The report states:

> 'Global LV (left ventricular) akinesis which improved after 'rest' on CPB following emerg repair left main and three grafts.'

In his evidence Mr Vaughan stated that although the comments referred to 'akinesis', it would have been more appropriate for him to use the expression 'diskenesis' for abnormal movement, or 'hypokinesis' for reduced movement. Akinesis meant no movement and that was not a correct description[48]. Between 1445 hours and 1505 hours Mr Knight closed the aorta and wired the sternum back together but did not sew the chest back up. At this point, and in accordance with normal practice, Mr Knight left the operating theatre with the intention that Dr Datta would complete the stitching of the skin. Mr Knight returned to his office[49].

3.24. At approximately 1505 hours Mrs Allan was being transferred from the operating table to a bed for transporting her to the ICU. Her heart function deteriorated. At this point Dr Datta called Mr Knight to return[50].

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42 Statement of Mr Knight, paragraph 16.2
43 I have explained the operation of the intra-aortic balloon pump at paragraph 4.11
44 Transcript, page 1544
45 Statement of Mr Knight, paragraphs 17.1, 172
46 Statement of Mr Knight, paragraph 17.2
47 Exhibit C38, page 58
48 Transcript, pages 215, 222
49 Statement of Mr Knight, paragraph 18.3
50 Transcript, page 540

3.25. Mr Knight returned to theatre at 1510 hours and observed Dr Datta in the surgeon's position and Mr Bidstrup in the first surgical assistant's position. Mrs Allan's blood pressure had deteriorated. Mr Knight decided that Mrs Allan would have to be reopened in order to observe her heart function and the replacement valve. Preparations for returning Mrs Allan to bypass took sometime as the operating theatre was no longer sterile following completion of the first surgery and the transfer to the ICU bed. The process of sterilisation had to recommence. That can take up to 30 minutes[51].

3.26. At 1544 hours Mr Knight reopened Mrs Allan's chest. At 1548 hours heparinisation was carried out in preparation for bypass and at 1553 hours bypass was started with cardioplegia being administered at 1554 hours by Mr Knight who did so via a direct injection into the aorta.

3.27. Mr Knight then reopened the aorta and investigated the area around the replacement aortic valve forming the view that this had been done properly and that the valve was functioning as it should. Mr Knight checked the area of the ostium of the left main coronary artery to ensure there were no problems there. On a very close inspection of the left coronary artery, Mr Knight noticed a very small tear at the ostium (opening) of the left coronary artery which measured no more than 2mm. Although not convinced that this was the cause of Mrs Allan's difficulties, Mr Knight stitched the tear. He then decided to proceed with emergency coronary bypass procedure because he could not be certain that the problems experienced by Mrs Allan were entirely due to the tear, if at all.

3.28. At 1622 hours Mr Knight had stitched the tear. Prior to undertaking the emergency coronary artery bypass grafts, he closed the aorta and removed the cross clamp to allow Mrs Allan's heart a period of 'rest' while the necessary vessels were harvested[52]. Between 1622 and 1631 hours, Mr Knight with Dr Datta's assistance extracted Mrs Allan's left internal mammary artery. He directed Mr Bidstrup to harvest vein from Mrs Allan's thighs. The coronary artery bypass graft was completed by 1647 hours. The chest was left open until approximately 1930 hours. During the period between 1700 hours and 1930 hours, Mr Knight had the ability to directly observe the heart and also to monitor pictures of its function via the TOE. He

[51] Statement of Mr Knight, paragraphs 19.4-19.6
[52] Statement of Mr Knight, paragraph 21.1

observed a slow improvement in cardiac function over this time[53]. During this time Mrs Allan was supported on bypass to rest her heart.

3.29. At 1830 hours Mr Knight introduced the inotropic combination of adrenaline and milrinone[54].

3.30. At 1911 hours Mr Knight weaned Mrs Allan off bypass altogether. Sometime shortly after this Mr Bidstrup left the theatre. Mr Knight continued to monitor Mrs Allan for another 30 minutes off bypass before closing her chest at about 1930 or 1940 hours to ensure that the heart was capable of functioning without the assistance of bypass. At 1930 hours Mrs Allan's blood pressure was 95 and as a result the dose of adrenaline was decreased from 5 drops to 3.5 drops[55]. At 2005 hours Mrs Allan's blood pressure was 85. According to the perioperative nursing care records[56], Mrs Allan's surgery was complete at 2020 hours and she was out of the theatre at 2030 hours.

3.31. Conclusion as to conduct of the surgery

Both of the experts, Dr Marshman and Dr Herkes, offer no criticism of anything that occurred during the surgery. Dr Herkes said:

> 'The overall care of this patient appears to be at a very high standard and generally cannot be criticised. The risks of aortic valve replacement in an 83 year old (sic) are very significant. Given the series of events that presented, the teams acted completely appropriately in my view.' [57]

3.32. Dr Marshman said that the operation was 'appropriate and well conducted'[58]. There was some criticism offered by Flinders Medical Centre about Mr Knight leaving Dr Datta in charge of the surgery during the two periods of Mr Knight's absence. In my view, these criticisms are without substance. Dr Datta was employed at the time of the operation in the position of registrar, overseas fellow, in cardiac surgery at Flinders Medical Centre[59]. In India Dr Datta had assisted with 60 to 70 mitral valve, and a similar number of aortic valve, procedures. He had personally implanted over 10 mitral valves and 5 to 7 aortic valves. Prior to November 2008 he had assisted all

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53 Statement of Mr Knight, paragraphs 22.1-22.3
54 Statement of Mr Knight, paragraph 22.2
55 Exhibit C38, page 59
56 Exhibit C38, page 51
57 Exhibit C59
58 Exhibit C66
59 Transcript, page 499

four of the cardio thoracic surgeons at the Flinders Medical Centre[60] and taken over the surgeon's role to some extent with all of them[61].

3.33. It is normal practice for a registrar of Dr Datta's level of experience to undertake aspects of the surgery on public patients when the supervising consultant, in this case Mr Knight, is of the view that he is competent and confident to undertake those aspects of the surgery. The fact of the matter is that in a teaching hospital, a decision as to what a registrar in the position of Dr Datta may be permitted to undertake in the course of an operation is a matter for the judgment of the consultant in charge. It is in the nature of a teaching hospital that registrars of a certain level of seniority will be left unsupervised for certain aspects of an operation as they near the end of their training. Without that time honoured approach to teaching, a registrar could never move to the status of consultant.

3.34. In my opinion, Mr Knight made an appropriate decision to leave Dr Datta to undertake the parts of the operation he did.

3.35. The evidence, voluminous as it is, has not established the cause of Mrs Allan's deterioration during the surgery. The proposition that the cause was the small tear referred to and repaired by Mr Knight in the left main coronary artery, has never been established. Mr Knight himself entertained doubts even during the operation that the supposed tear was the cause of Mrs Allan's deterioration. For that reason, he proceeded to carry out an emergency coronary bypass graft. That in itself demonstrates that he was not satisfied that he had found and solved the problem by repairing the small tear.

3.36. A number of other possibilities for Mrs Allan's deterioration have been suggested in the course of the evidence. They include a protamine reaction, the presence of some air as a result of the surgery, the possibility of some calcified material having been disturbed in the course of the debridement and finding its way into the coronary artery, notwithstanding the great care and skill with which Mr Knight carried out the debridement of the annulus, an inadequate protection of the heart during cardioplegia, amongst others. On a close analysis of the whole of the evidence it is simply not possible to arrive at a conclusion as to the precise cause of Mrs Allan's deterioration. Dr Marshman said that whatever the cause of the initial hypotension, its continuation

[60] Transcript, page 500
[61] Transcript, page 727

led to global myocardial ischaemia because of the left main coronary stenosis and total occlusion of the right coronary artery[62]. In relation to the small tear in the ostium of the left main coronary artery, he did not believe this was likely to result in a dissection[63].

3.37. If the small tear in the left main coronary artery was the cause of Mrs Allan's hypotension, it did not necessarily occur as a result of the introduction of the cannula during the administration of the second dose of cardioplegia. Other possibilities exist. For example, it may have occurred during the pre-operative angiogram, it may have occurred during the process of removing the diseased valve and the debridement of the area, it may have occurred as a result of a spike in blood pressure from the administration of adrenaline or it may have occurred during the checking of the left coronary artery opening with forceps.

3.38. Even if there had been an autopsy, it would not have shed any light on which of these events was responsible for the tear.

4. Mrs Allan's treatment in the Intensive Care Unit (ICU)

4.1. Mrs Allan was admitted to ICU at 2100 hours[64], the surgery having been recorded as finishing at 2020 and Mrs Allan leaving theatre at 2030[65]. The doctor responsible for her care in ICU was Dr Richards, who was an anaesthetic registrar on rotation in ICU.

4.2. The ICCU critical care worksheet shows that her augmented diastolic blood pressure at 2100 hours was 85[66]. On admission to ICU Mrs Allan was receiving adrenalin at 3ml per hour in conjunction with milrinone at 3ml per hour, this being the inotropic medication on which she had departed theatre. According to blood gas results recorded at 2048 hours she had a pH reading of 7.07. That is a low reading[67] indicating an acidotic state resulting from significant tissue damage caused during surgery. Further blood results in ICU at 2129 record CK at 6632[68]. This CK level is therefore very high. The same blood tests reveal a CKMB reading of 925. That is

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[62] Exhibit C66, page 6
[63] Exhibit C66
[64] Exhibit C38, page 39 - Cardiac surgery ICCU medical admission summary
[65] Exhibit C38, page 51 - Perioperative nursing care record
[66] Measured in mm of mercury. For convenience all references to blood pressure in this finding are to blood pressure in mm of mercury unless otherwise stated
[67] Normal is 7.35 to 7.45
[68] CK stands for Creatine kinase, a protein which functions as an enzyme. It is widely present inside cells, particularly within muscle. Most commonly it is found in skeletal muscle. There is a subtype found in cardiac muscle which is referred to as CKMB. The enzyme is not normally found in the blood in significant quantities and the upper limit of the normal range is less than 150 - See evidence of Dr O'Callaghan Transcript, pages 1757-1758

also high and is indicative of heart muscle damage. Dr O'Callaghan said that this is far in excess of what one would expect after routine heart surgery, even valvular surgery and he would expect after heart surgery the total CK might be more in the realm of 400-440 and the CKMB less than 100[69]. Mr Knight on the other hand, gave evidence that the high level was in part explained by what he described as 'wash out'. This was the effect of introducing fresh blood into the area of injury after performing bypass surgery, thus washing enzymes back into circulation with the result that the enzyme release is circulated much more generally and quickly than would otherwise be the case.

4.3. Unfortunately, both the CK and the CKMB levels continued to rise throughout the evening of 25 November and early morning of 26 November 2008. Notably at 0110 hours the CK reading was 9314 and at 0540 hours it was 12,779[70]. The latter figure was described by Mr Knight as the highest CK he has ever seen in his career[71]. There were no further CKMB readings taken during the evening or the following morning.

4.4. Tropinon T is another measure of heart damage. There were no readings of this component until 0110 hours when it was recorded at 33.83. At 0540 hours it was recorded at 89.70. Dr O'Callaghan gave evidence that he has never seen a Tropinon level at 89.70 either before or since Mrs Allan's case and, further, that the preceding figure of 33.83 was indicative of a massive myocardial infarction[72]. He also gave evidence that Tropinon is rapidly available and so becomes abnormal very quickly - much faster than CK levels which take some 4 to 6 hours after the initial insult to become elevated[73].

4.5. As I have already said, the pH reading at 2048 hours from arterial blood gas was 7.07 which, according to Dr O'Callaghan, was indicative of a severe lactic acidosis on admission to ICU[74]. In contrast to the more pessimistic trends of the CK and Tropinon T measurements, the pH improved when measured later at 2334 hours to 7.16. This increase from 7.07 was a decrease in acidosis and a positive response to the treatment received by Mrs Allan in the intervening period. A further pH reading at 0110 hours on 26 November 2008 shows a level of 7.28, representing a further

[69] Transcript, page 1761
[70] Exhibit C38, Exhibit C64c
[71] Transcript, page 2074
[72] Transcript, page 1766
[73] Transcript, pages 1766-1767
[74] Transcript, page 1769

improvement. However, by 0540 hours on 26 November 2008 the pH had deteriorated again to 7.13 representing a serious decline.

4.6. Very soon after her arrival in ICU, Mrs Allan's ventilation was improved by increasing the volume to reduce the level of partial pressure of carbon dioxide in her blood. This, in conjunction with the administration of sodium bicarbonate, led to the improvement in pH levels between 2048 and 2334 / 0110 hours. This was agreed to by Dr O'Callaghan[75]. Curiously, the bicarbonate was not administered until 2300 hours[76]. An earlier administration of bicarbonate might have seen a more rapid improvement in the acidosis.

4.7. Dr O'Callaghan gave evidence that the low pH and high lactate at 2048 influenced the decision to change the inotropes from adrenaline to noradrenaline[77]. Importantly, Dr O'Callaghan acknowledged that adrenaline was not the predominant cause of the biological phenomenon of low pH and high lactate, but did claim that adrenaline would be a contributor. Importantly, this was disputed by Mr Knight who said that on the low doses at which Mrs Allan was being administered adrenaline on leaving theatre, it was impossible that her lactic acidosis was attributable to adrenaline[78].

4.8. Dr O'Callaghan's position was that lactic acidosis is a recognised side effect of adrenaline and that it was appropriate to substitute noradrenaline for adrenaline on Mrs Allan's arrival in ICU in order to eliminate one possible cause of her lactic acidosis. Mr Knight on the other hand contended that her lactic acidosis was easily improved with better ventilation and the administration of bicarbonate. He also said that the institution of dialysis would have further improved the situation but noted that this was not done until approximately 0300 hours the following day. This brings me to the heart of the dispute between Mr Knight and Dr O'Callaghan, namely the change of inotrope from adrenaline to noradrenaline.

4.9. Mr Knight contended that at the very low doses at which he had administered adrenaline in theatre, the adrenaline was operating on Mrs Allan as an inotrope in improving the contractility, or force of contraction, of her heart and was reducing the afterload on the heart by operating as a vasodilator.

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[75] Transcript, pages 1926-1927
[76] Exhibit C38, ICCU drug order record sheet.
[77] Transcript, page 1771
[78] Transcript, page 2070

4.10. Mr Knight said that it is a property of adrenaline at low doses that it operates as a vasodilator while, perhaps surprisingly to the lay observer, at higher doses adrenaline acts as a vasoconstrictor. Mr Knight is undoubtedly correct in this contention and there was no dispute about that by any witness. By contrast, noradrenaline always acts as a vasoconstrictor in addition to its other inotropic effect of improving contractility or the force of contraction of the heart.

4.11. Mr Knight's contention was that Mrs Allan's heart had sustained significant damage during her surgery and that his strategy was to minimise the work the heart had to do in the immediate aftermath of the surgery by means of a combination of milrinone (another inotrope) and adrenaline in conjunction with an intra-aortic balloon pump that was inserted during surgery and remained insitu throughout Mrs Allan's stay in ICU. The intra-aortic balloon pump operated as a significant aide to the heart by means of its balloon in the aorta which uses helium to rapidly introduce volume into the aorta and then just as rapidly remove that volume from the aorta. This is done by inflating and deflating the balloon in conjunction with the heart's beating. The pump operates as follows. When the heart squeezes and the aortic valve starts to close, the balloon pump is inflated thus increasing the pressure experienced in the vascular system by a significant amount as a result of increased volume. As the heart relaxes and refills in preparation for a further pulse and ejection of oxygenated blood, the balloon pump rapidly deflates immediately before the opening of the aorta thus reducing the afterload against which the heart must pump. Thus, the intra-aortic balloon pump has a dual effect in boosting or augmenting blood pressure at the beginning of diastole and lowering the afterload experienced by the heart at the beginning of systole. The intra-aortic balloon pump in conjunction with the inotropic regime of adrenaline and milrinone were intended by Mr Knight to reduce the afterload on the heart.

4.12. Mr Knight contended that the change of inotrope from adrenaline to noradrenaline on Mrs Allan's arrival at ICU meant that the afterload experienced by her heart would have increased as a result of the vasoconstrictor properties of noradrenaline. However, Mr Knight did not contend that it was necessarily wrong to make the change from adrenaline to noradrenaline. Rather, he contended that, although he did not condone an immediate change to noradrenaline, he would not have taken issue with it if it had resulted in an improvement. He would have had no issue with its

ongoing use if its precise effect had been monitored by means of a Swan-Ganz catheter.

4.13. Swan-Ganz catheter

A Swan-Ganz catheter, or a pulmonary artery catheter, is a device inserted into the right side of the heart and then floated into the pulmonary artery. It is used to:

- assess right heart function;
- directly measure pulmonary artery pressures;
- indirectly measure left heart pressures by pulmonary artery occlusion;
- calculate cardiac output and other haemodynamic variables;
- perform mixed venous blood sampling;
- provide continuous central temperature monitoring;
- provide access to a central vein allowing medication and fluid administration[79]

4.14. Cardiac output

Exhibit C64g, the Royal Prince Alfred Hospital pulmonary artery catheter (PAC) policy, provides as follows:

> 'Cardiac output: cardiac output is the measurement of the amount of blood ejected by the ventricle each minute. It reflects pump efficiency and is a determinant of tissue perfusion.
>
> CO = HR (heart rate) x SV (stroke volume)
>
> Normal = 4-8L/min
>
> (omitted)
>
> - Heart rate: number of times per minute that the ventricle contracts
> - Stroke volume: stroke volume is the volume ejected from the left ventricle with each contraction
> - Influenced by the three main components of cardiac function: preload, afterload and contractility
>   - Preload: the amount of myocardial fibre stretch at the end of diastole. Preload also refers to the volume in the ventricles at this phase. The PAC does not measure the volume or stretch in the ventricles but it can measure the pressure that it exerts. (omitted)
>   - Afterload: the pressure against which the ventricles must pump to open the pulmonic or aortic valves. Blood viscosity, ventricular volume and wall

[79] Exhibit C64g - Royal Prince Alfred Hospital pulmonary artery catheter policy

thickness and vascular resistance contribute to the stress distributed during ventricular ejection (afterload). The evaluation of afterload with the PAC is by vascular resistance: right ventricular afterload equals pulmonary vascular resistance (PVR). Left ventricular afterload equals systemic vascular resistance (SVR).

- Contractility: the contractile force of the heart independent of preload and afterload. Right ventricular contractility equals right ventricular stroke volume work index. Left ventricular contractility equals left ventricular stroke volume work index.'

4.15. Mr Knight contended that a Swan-Ganz catheter was necessary in a change to noradrenaline

Mr Knight consistently maintained his view that if the ICU were to introduce noradrenaline then a Swan-Ganz catheter should have been used to monitor and measure Mrs Allan's cardiac output, particularly where increasing doses of noradrenaline were administered.

4.16. Mr Knight contended that without the presence of a Swan-Ganz catheter it was impossible to determine whether the noradrenaline was increasing the afterload. He contended that it was not sufficient to argue that a failure to achieve an increase in Mrs Allan's mean arterial pressure was a reliable indicator that her heart was not experiencing an increased afterload. He argued that another explanation may have been that the heart was indeed experiencing an increased afterload but that there was no resultant increase in mean arterial pressure because the contractile force of the heart was not equal to the task of pushing against the afterload. These variables would have been known had a pulmonary artery catheter been inserted.

4.17. I accept this contention. The evidence of the two expert witnesses, Dr Herkes and Dr Marshman, was that in each of their medical settings a pulmonary artery catheter would have been deployed. Each of them gave evidence that a pulmonary artery catheter would not have assisted in Mrs Allan's case because it is a measuring device and not a therapeutic device and that it would merely have confirmed what they already knew by reference to other surrogate measures. However, neither of them went so far as to say that a Swan-Ganz catheter would not have assisted in reaching a firm conclusion as to whether afterload was increasing by virtue of the vasoconstrictor effect of noradrenaline without a corresponding increase in mean arterial pressure because the heart did not have sufficient contractility to meet the afterload imposed by the vasoconstrictor effect of noradrenaline.

4.18. Of course it is one thing to conclude that a Swan-Ganz catheter would have been useful in the manner Mr Knight suggested to separate these variables and measure them individually. It is quite another thing to conclude that good reason existed for inserting one. It was the contention of the expert, Dr Herkes, that good reason for doing so did not exist. The other expert, Dr Marshman, did not give oral evidence and, accordingly, certain propositions were never put to him. For example, it was put to Dr Herkes that adrenaline in the doses being provided to Mrs Allan did not act as a vasoconstrictor.

4.19. Dr Herkes gave evidence that the vasodilating effects of adrenaline are actually only evident in what might be considered microscopic or homeopathic doses[80]. He also said that the doses at which adrenaline is a vasodilator are a tenth of the doses that were used by Mr Knight and that Mr Knight was in fact using vasoconstricting doses of adrenaline[81]. He said:

> 'Adrenaline is a vasoconstrictor at .1 micrograms per minute and Mr Knight's using 5-10 micrograms per minute. So a vasoconstricting dose of adrenaline.' [82]

Dr Herkes was wrong about the dose of adrenaline being administered by Mr Knight in theatre. The dosage never exceeded 5 micrograms per minute and in fact was reduced to 3.5 micrograms per minute before Mrs Allan left theatre.

4.20. After several academic publications were put to Dr Herkes[83], he conceded that the effect of those publications was inconsistent with his evidence about the dose at which adrenaline is a vasodilator[84]. In the end he agreed that the doses of adrenaline being administered by Mr Knight were at the lower end of the dose range which produces both a vasodilating and vasoconstricting effect according to Exhibit C59e[85]. In summary, Dr Herkes withdrew to a significant extent from his initial evidence where he asserted that Mr Knight's doses were ten times higher than those at which adrenaline has a vasodilating effect. He moved from that position to acknowledging that the dosages had a potentially vasodilating effect at the rates being administered by Mr Knight.

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[80] Transcript, pages 2465-2466
[81] Transcript, pages 2524-2526
[82] Transcript, page 2526
[83] Exhibits C59d, C59e and C59f
[84] Transcript, page 2646
[85] Transcript, page 2647

4.21. This was a significant concession by Dr Herkes and one that was not addressed in the submissions put on behalf of the Flinders Medical Centre and the ICU, nor by those appearing for Dr O'Callaghan. The omission of both of those parties to make any reference to Dr Herkes' concession is very significant and, in my opinion, amounts to a concession that Mr Knight was correct in his assertion that the dosage of adrenaline set by him in theatre was vasodilating or, in any event, not significantly vasoconstricting. I find accordingly.

4.22. The effect of finding that Mrs Allan's adrenaline dosage was vasodilating or at least not vasoconstricting

This finding gives impetus to Mr Knight's contention that a Swan-Ganz catheter should have been deployed in Mrs Allan's case. One might well rhetorically ask if a Swan-Ganz catheter were not to be deployed in Mrs Allan's case, when would it be deployed? This finding also undermines Dr Herkes' view about the lack of benefit that would have been afforded by a Swan-Ganz catheter in this case. The dosage intricacies were not explored with Dr Marshman.

4.23. Once adrenaline was substituted by noradrenaline it was incumbent upon ICU to strictly monitor the effects of the changed inotropic regime, bearing in mind that the evidence shows that the regime had moved from one in which a vasodilating dosage of a particular inotrope had been substituted for a vasoconstricting dose of another inotrope.

4.24. So far I have not mentioned the effect of milrinone. The evidence showed that milrinone has a vasodilatory effect in addition to its inotropic qualities. Indeed, the evidence also showed that in, what might be referred to as a standard case, milrinone and noradrenaline will be run together with the intention and effect of the noradrenaline's vasoconstriction effect ameliorating the vasodilatory impact of the milrinone.

4.25. Ongoing impact on Mrs Allan's mean arterial pressure

Mrs Allan's mean arterial pressure, according to the ICCU critical care worksheet, which is part of Exhibit C38, was 45 upon her arrival at ICU at 2100 hours. It moved to 50 at 2200 hours, 53 at 2300 hours, 55 at 2400 hours, 50 at 0100 hours, 47 at 0200 hours, 65 at 0300 hours, 44 at 0400 hours, 54 at 0500 hours, 46 at 0600 hours, 48 at 0700 hours, 35 at 0800 hours and 32 at 0900 hours. Thus it can be seen that apart

from a reading at 0300 hours, the mean arterial pressure did not increase through the night. However, it was Dr Richards' intention to attempt to increase Mrs Allan's mean arterial pressure by the use of the noradrenaline and other interventions. With that in mind, the dosage of noradrenaline was increased as the night went on. Thus, at 2200 hours it was 7 micrograms per minute and then increased to 9 micrograms per minute at 2300 hours, 10 at 0100 hours, 14 at 0200 hours, 20 at 0300 hours, eventually increasing to 35 micrograms at 0800 hours.

4.26. Dr Richards gave evidence that the main purpose in the administration of noradrenaline was to try to increase Mrs Allan's blood pressure[86]. He also said that it was common practice in the unit when milrinone is running to use noradrenaline against it. He said milrinone has significant side effects in dropping the patient's blood pressure because of what it does to the peripheral vasculature and that noradrenaline is used to counter that[87]. Dr Richards said that his assessment of Mrs Allan after she was handed over to him, which I take to have been at approximately 2100 to 2130 hours on 25 November 2008, was:

> 'At that point I thought her prognosis was dismal and she was one of the sickest patients I had ever seen.' [88]

Dr Richards said that changing Mrs Allan to adrenaline from noradrenaline was one of the first things he did and it would have been within the first half an hour of her arriving in ICU[89]. However, Dr Richards said that he did not know at the time he made that decision whether adrenaline was being used as a vasodilator or a vasoconstrictor[90]. Dr Richards said that he gave instructions to the nursing staff to titrate the dose of noradrenaline as required to maintain an augmented blood pressure in the range of 80 to 90[91]. Having regard to Dr Richards' evidence at transcript, pages 1357 to 1359, I do not believe that he had an appreciation of the implications of the inotropic regime that had been chosen by Mr Knight in theatre. In particular he did not appreciate, or did not appear to appreciate even when giving evidence, that at the relatively low dose at which adrenaline was running it was operating as a vasodilator

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[86] Transcript, page 1282
[87] Transcript, pages 1282-1283
[88] Transcript, page 1288
[89] Transcript, page 1314
[90] Transcript, page 1324
[91] Transcript, page 1332

or, at the least, with little or no vasoconstriction effect. Even if he had appreciated this, it would appear on his evidence that he would have in any event changed the regime from adrenaline to noradrenaline because of his object of increasing vascular resistance to increase blood pressure.

4.27. The relationship between blood pressure and cardiac output

Despite the increasing doses of noradrenaline Mrs Allan's blood pressure did not increase between 2100 hours and 0200 hours. The mean arterial pressure did reach 65 at 0300 hours, having been at 47 at 0200 hours. It was at 0200 hours that noradrenaline was increased from 10 to 14 and it is perhaps reasonable to infer that this led to the increase to 65 at 0300 hours.

4.28. In any event, the trend between 2100 and 0200 hours was of increases in the dose of noradrenaline with no appreciable effect on blood pressure. From this it seems reasonable to conclude that one explanation was that Mrs Allan's vascular resistance was being increased by the noradrenaline but that her blood pressure was not increasing because the contractility of her heart was insufficient to have that effect. However, in order to maintain the blood pressure over that period the heart was having to work harder against an increasing vascular resistance. In other words, the heart was expending energy in maintaining a blood pressure against an increasing resistance but was not gaining any ground.

5. Mrs Allan's condition upon arrival at ICU

5.1. Mr Knight

Mr Knight said in his written operation report[92] that Mrs Allan was stable on transfer to ICU. In his statement[93] Mr Knight said that at the end of surgery he believed that he had managed to retrieve the situation[94]. He continued to have very serious concerns for Mrs Allan and did not underestimate the need for very diligent management once she was transferred to ICU[95]. Mr Knight said that by stable:

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[92] Exhibit C38
[93] Exhibit C62
[94] Exhibit C62, paragraph 22.6
[95] Exhibit C62, paragraph 22.6

> 'I mean that her heart was now pumping effectively and consistently, and at an acceptable rate and that it was appropriate at that point to transfer her to ICU. I had an IABP in. There was certainly nothing more surgically that I could do.' [96]

Mr Knight said further:

> 'Whilst Mrs Allan was obviously a very sick woman with a damaged heart that required very careful management, I gave her **reasonable prospects of pulling through**. I believe that was the view of all of us in theatre.' [97] *(the emphasis is mine)*

5.2. Dr Datta

Dr Datta believed that at the time of completion of surgery Mrs Allan would take quite some time to recover and there was a possibility that she might not survive but he believed that her condition had improved significantly since problems were first detected in theatre and that the data from the transesophageal echo about heart function had vastly improved[98].

5.3. Dr Datta thought Mrs Allan would take a long time to recover and, although there was a chance that she might not survive, he was quite hopeful[99]. Dr Datta did say 'there was a possibility she would not survive'[100].

5.4. Mr Bidstrup

Mr Bidstrup left the theatre shortly before Mrs Allan was ready to be transported to ICU. He was asked about his prognosis and responded:

> 'A: I think she had a 50/50 chance of surviving.
>
> Q: Higher than that?
>
> A: Yes' [101]

5.5. Mr Vaughan

The anaesthetist, Mr Vaughan, gave the following picture in his evidence:

- He remembered reading the pictures from the transesophageal echo 'and not being too hopeful about the patient's progress towards the end of the operation'[102]
- Mr Vaughan's prognosis when Mrs Allan left the theatre to go to the ICU was:

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[96] Exhibit C62, paragraph 23.2
[97] Exhibit C62, paragraph 23.3
[98] Statement of Dr Datta, Exhibit C46f, 11.3
[99] Transcript, page 423
[100] Transcript, page 480
[101] Transcript, page 1594
[102] Transcript, page 212

> 'Very guarded. I would have been surprised if she had survived her intensive care.'[103]

- Mr Vaughan was asked about what was said to be Mrs Allan's gradual heart function improvement towards the end of the operation to global hypokinesia and responded:

> 'Yeah, still with an incredibly guarded prognosis.'[104]

- And when asked why he said that he elaborated:

> 'We've got a reasonable augmented blood pressure, we're on not quite the maximal therapy, but we've got mechanical assistance, we've got moderate ionotrope requirement and the patient is 81 years old, has an incredibly long ischaemic time, cross-clamp on and off and the echo picture looks like the heart's function is severely reduced.' [105]

- When Mr Vaughan was asked if he gave any particular instructions to the people in the ICU he responded:

> 'I would have said "This is Mrs Allan" and once again this is what I think I would have done not my specific memory, "She's on these infusion pumps and she's got a balloon pump in and, you know, blood pressure is marginal and good luck".' [106]

When Mr Vaughan was asked why he had said 'good luck', he explained that he was fairly pessimistic about her chance of recovery.

- Mr Vaughan was asked about a blood report taken at 2129 hours, that is within half an hour of arrival in ICU, and in commenting on the CKMB percentage of total at 14, he indicated that was indicative of myocardial damage and although he was not aware of that piece of data at the time he was finishing with her in theatre, he said:

> 'I was pretty pessimistic to start with, so it would have just fitted into that initial impression.' [107]

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[103] Transcript, page 222
[104] Transcript, page 286
[105] Transcript, page 286
[106] Transcript, page 305
[107] Transcript, page 338, Exhibit C38 page 84

5.6. Dr Richards

Dr Richards said that his impression of Mrs Allan when she arrived in ICU was that she was 'perilously ill'[108]. He said that at that early stage he thought her prognosis was 'dismal' and:

> 'She was one of the sickest patients I have ever seen.' [109]

- Dr Richards said he thought ICU had a low probability of being able to get Mrs Allan recovering[110].
- He was asked about whether Mrs Allan was 'stable' upon her arrival in ICU and he responded:

> 'The word stable means many things. People can be stable but not have a survivable blood pressure or a cardiac output and they can be stable at that point, and from that sense, yes she - she was stable with a - but she was hypotensive and tachycardic at the same time, so if that's stable, yes, she was stable in a bad way.' [111]

- He commented:

> 'We proceeded as if her cardiac output was lousy all the time.' [112]

5.7. Dr O'Callaghan

Dr O'Callaghan was asked if he agreed that the fact that there might have been some myocardial cell death did not indicate that Mrs Allan's heart condition was irreversible or irretrievable at the time of her presentation to ICU. He agreed with that proposition. He agreed also with the proposition that he would not have looked at the creatine kinase readings or the CKMB readings at 2100 hours on 25 November 2008 and said it was hopeless, Mrs Allan was dead[113].

5.8. His overall position is probably best indicated by the following passage of evidence:

'Mr Whitington QC	Can I also suggest to you that if the treatment being administered by ICU, particularly the noradrenaline was not working but rather was impairing the heart that that could be responsible for an increased CK and CKMB profile.
Dr O'Callaghan	Well that is to make the erroneous assumption that you understand the nature of the underlying pathophysiological

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108 Transcript, page 1275
109 Statement of Dr Richards, Exhibit C32
110 Transcript, page 1288
111 Transcript, page 1322
112 Transcript, page 1332
113 Transcript, page 1840

	process and that you are again also assuming that the pathophysiological process is reversible. So I think in this case that's an erroneous and difficult assumption to make given the fact that it is unclear what happened to Mrs Allan in the operating room and why the left ventricle became so dysfunctional in the first instance.
Mr Whitington QC	With respect it's not an erroneous assumption. It is an assumption that can't be made out one way or the other on the facts as known; isn't that right.
Dr O'Callaghan	We can't assume that the damage was reversible.
Mr Whitington QC	But what I'm putting to is that it is consistent with what we have seen that (a) the damage was reversible at handover or and (b) the position, in any event, was retrievable, and finally that the administration of noradrenaline might have exacerbated the underlying pathology.
Dr O'Callaghan	The underlying pathology remained unclear. **At handover the situation may have been retrievable, that is correct**. However, in isolation the main point that I think needs to be made in respect to your question with respect to the administration of noradrenaline is the lack of treatment effect may be the greatest indication of irreversibility of the underlying pathology. *(the emphasis is mine)*
Mr Whitington QC	Yes.
Dr O'Callaghan	So if the basic intent is to say with the administration of any particular treatment that its failure to result in a satisfactory outcome is necessarily that the diagnosis or the indication is incorrect - and that is not an assumption that can be made because the most likely failure of treatment is because the underlying process is not amenable to treatment.' [114]

Some of this evidence of Dr O'Callaghan was characterised as a concession on his part that Mrs Allan's condition may have been retrievable at handover[115]. To the extent that Dr O'Callaghan allowed that Mrs Allan's condition may have been retrievable at handover, in my opinion it was qualified by what he had to say about the underlying pathology which was, to use his word 'unclear'.

[114] Transcript, pages 1841-1842
[115] Submissions of Mr Knight, paragraph 3.5.15

5.9. Dr Herkes

Dr Herkes was engaged by Flinders Medical Centre to provide an expert report. He gave the following opinion:

> 'I think in ideal circumstances she would have had a very slim chance of pulling through - not no chance but her chance would have been very slim.' [116]

5.10. Dr Marshman

Dr Marshman was an expert engaged by Dr O'Callaghan's instructing solicitors to give an opinion. He stated as follows:

> 'Arterial blood gasses at that time demonstrate a mixed respiratory and metabolic acidosis with the respiratory component rapidly corrected by alteration in the ventilation but ongoing deterioration of the severe metabolic acidosis. Her urine output is measured at 60 mls on arrival in ICU but then never greater than 15mls an hour. This all points to a significant insult to her heart and other organs during a period of prolonged hypotension between the second and third runs of cardiopulmonary bypass. The inability of cardiopulmonary bypass to correct the metabolic acidosis over a 2 hour period (1553-1911), in my experience, is a grave prognostic indicator. The implication is of a significant ischaemic insult to the liver, gut and kidneys. **I would have described her arrival in Intensive Care as grave and probably unsalvageable**.' *(the emphasis is mine)* [117]

5.11. Conclusions as to Mrs Allan's condition upon arrival at ICU

It is clear that on arrival in ICU Mrs Allan's condition was extremely grave. I adopt the assessment of Dr Herkes that she had a slim chance of survival - not no chance, but a slim chance. It follows that her death was not an inevitability upon her arrival at ICU.

6. Dr O'Callaghan's involvement on the evening of 25 and 26 November 2008

6.1. Dr O'Callaghan left Flinders Medical Centre to go home at 7:30pm or thereabouts on 25 November 2008. He remained the on call intensivist and was available by telephone should he be required. He was therefore not present in the ICU at the time of Mrs Allan's arrival.

6.2. Dr O'Callaghan was contacted twice during the evening by Dr Richards. The first contact was not made by Dr Richards until 0210 hours in the early morning of 26

[116] Transcript, page 2470
[117] Report of Dr Marshman, Exhibit C66

November 2008. There is a record of this conversation in Dr Richards' handwriting in Exhibit C38. It is as follows:

> 'ICCU Reg - Richards 66460
> ↑ lactate from 11.1 → to 13.7
> CK↑ from 6000 to 9000
> ↑ noradrenaline to 20 micrograms per minute
> MAP remains around 44→50
> Augmented pressure 80-90
> Discussed with Dr O'Callaghan plan vascath
> CVVHD
> Vasopressin'

6.3. Dr O'Callaghan said that also during the telephone conversation:

- Dobutamine was considered and rejected;
- Dr O'Callaghan was asked whether in that conversation he raised with Dr Richards the notion of making contact with the surgical team about Mrs Allan's condition and he responded:

  > 'I certainly recall raising the issue of contacting the surgical team.' 118

  And he also said:

  > 'I recall emphasising to Dr Richards the importance of contacting the cardiac surgical team and Mrs Allan's family.' [119]

- Dr O'Callaghan was aware of the change from adrenaline to noradrenaline and otherwise also aware of the fact that milrinone was being run at the same time. He clearly was aware, having regard to the note in Exhibit C38 referred to above, that there was a plan to commence dialysis and the further vasocontracting drug, Vasopressin.

6.4. The second telephone contact between Dr Richards and Dr O'Callaghan occurred at around 0500 hours by which stage the situation clearly was irretrievable and Mrs Allan's death was at that point, inevitable.

6.5. The evidence showed, and I find, that Dr Richards never contacted any member of the surgical team at any time during Mrs Allan's stay in ICU.

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[118] Transcript, page 1791
[119] Transcript, page 1712

6.6. Handover

A considerable amount of evidence was devoted to the adequacy of the handover from the surgical team to the ICU. Some of this was concerned with whether Mr Knight did or did not indicate that he would be attending at the ICU to offer some advice on the management of Mrs Allan. In the result, what is clear is that Mr Knight did intimate to members of the surgical team that he would be attending at ICU in order to speak to Mrs Allan's relatives and inform them of what had transpired during the surgery. Dr Datta had a recollection that Mr Knight also said that he would be communicating with ICU staff about the management of Mrs Allan. Mr Knight on the other hand denied that he had done this. Given Mr Knight's evidence that his input in ICU was, at least from his perception, less than welcome and not valued, I find it unlikely that he would have decided on this occasion to proffer advice about her management.

6.7. The normal routine is for the consultant anaesthetist, in this case Mr Vaughan, to attend with the surgical registrar, in this case Dr Datta, and impart the necessary information at handover. There is no doubt that both Mr Vaughan and Dr Datta attended at handover in the present case. In my opinion, the weight of the evidence is that Mr Knight did not indicate that he intended to interfere in that normal process by communicating his own 'handover' message to ICU staff.

6.8. As to the adequacy of the handover, I find that what might be described as the usual level of information, was provided in the present case. It will be recalled that Mr Vaughan gave evidence as to what he thought he would have said - not having a particular recollection - and he said:

> 'I would have said 'This is Mrs Allan' and once again this is what I think I would have done not my specific memory, 'She's on these infusion pumps and she's got a balloon pump in and, you know, blood pressure is marginal and good luck'.' [120]

Had Mr Vaughan conveyed some detailed description of the inotropic regime chosen by Mr Knight in theatre with an emphasis on the reason for adopting a low dose of adrenaline, I would have expected that he would have recalled that. The whole tenor of his evidence was to the opposite effect. In my opinion the likelihood is that no particular emphasis was placed by Mr Vaughan on the significance of the inotropic regime that had been determined in surgery.

[120] Transcript, page

6.9. Dr Datta gave evidence that he did not remember what was said by Mr Vaughan at handover[121]. Dr Datta also gave evidence that he thought that Mr Knight went down to the ICU to speak to the ICU staff and that Dr Datta had never seen him do that before and this indicated Mr Knight's level of concern about Mrs Allan[122]. That passage of evidence does not alter my view about what Mr Knight likely did. Dr Datta was, in my opinion, simply mistaken about his assumption that Mr Knight was intending to break from his usual practice of leaving handover to the consultant anaesthetist and the surgical registrar.

6.10. Dr Datta's recollection of handover was that he himself conveyed in some detail what Mrs Allan had gone through and what the complications were during surgery. Dr Datta also conveyed that Mrs Allan had an intra-aortic balloon pump and that she was on inotropes. He said that there was a chance of bleeding because she had been on bypass a number of times and Dr Richards could see the haemodynamics for himself. Dr Datta specifically recalled that he had told Dr Richards that the surgical team were quite concerned and Dr Datta asked if the surgical team could be called if there was any problem. Dr Datta also suggested that a Swan-Ganz catheter might be helpful[123]. Dr Datta did not have a clear recollection of whether any emphasis was laid on the exact nature of the inotropic regime and, on balance, it is my view that, for his part, he did not convey anything to the effect that it had been carefully chosen[124]. Dr Richards gave evidence that he did not recall whether Dr Datta had suggested that a Swan-Ganz catheter might be helpful but conceded that Dr Datta may have said this[125]. On the whole of the evidence, I find that Dr Datta did make that suggestion.

6.11. On the whole of the evidence, it is my conclusion that at handover no particular emphasis was placed by the surgical team on the significance of the inotropic regime that had been set in surgery.

6.12. However, in my opinion, it is reasonable for the surgical team to assume that the subtleties of a particular inotropic regime would be appreciated by the ICU staff. Furthermore, that any decision by the ICU staff to make a change to the inotropic regime would be based on a careful consideration of the implications of doing so. In my opinion, the handover was routine and in line with usual procedures.

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[121] Transcript, page 629
[122] Transcript, page 628
[123] Transcript, page 554
[124] Transcript, page 554
[125] Transcript, page 1385

6.13. <u>Should Dr O'Callaghan have been present at the ICU when Mrs Allan was admitted?</u> Dr O'Callaghan's position in relation to this was that Dr Richards was a perfectly competent registrar and that Dr O'Callaghan was entitled to assume that, in the event that he was required, Dr Richards or any of the other staff of the ICU would have appreciated that fact and made contact with him.

6.14. That clearly was an expectation based on the usual practice of the ICU. In deciding to leave the ICU and go home at 7:30pm that day, I believe that Dr O'Callaghan was acting in accordance with usual procedures for the Flinders Medical Centre ICU.

6.15. It was strongly suggested that Dr O'Callaghan should have been aware that Mrs Allan was likely to arrive at ICU but had been delayed and that he should therefore have realised that there had likely been a complication in surgery and, as a result, his presence would be required when Mrs Allan arrived in ICU.

6.16. Evidence was adduced about Dr O'Callaghan's knowledge of Mrs Allan's likely arrival in ICU, the likely time at which that should happen and the fact that there had been a delay. I do not propose to traverse that evidence. Instead I am content to conclude that in acting as he did, Dr O'Callaghan did not depart from what might be regarded as the usual approach in Flinders Medical Centre ICU.

6.17. However, whether that usual procedure is appropriate is an entirely different matter. In my opinion Dr O'Callaghan, or some other consultant, should have been present in ICU at the time of Mrs Allan's admission and should have been involved in her initial assessment, if not at the handover itself. That is so, in my opinion, because Mrs Allan was indeed a very sick patient.

6.18. Dr Herkes gave evidence on this subject that he would have expected that a consultant intensivist would have been present and would have given:

> '… consultant level advice about the patient and given how sick Mrs Allan was, I would expect that consultant would have attended the hospital.' [126]

[126] Transcript, page 2491

He further said:

> 'I believe that Mrs Allan deserves a consultant intensivist to see her but more importantly that it isn't appropriate to leave the responsibility for decision-making in situations like that to junior medical and nursing staff where a patient is dying.' [127]

In the passage just quoted, Dr Herkes should not be taken to have been suggesting that Mrs Allan was dying upon her admission to ICU - that much is clear upon a consideration of the whole of his evidence. It will be recalled that his position was that she had a slim chance of survival.

6.19. Dr Richards should have contacted Dr O'Callaghan to advise him of Mrs Allan's admission to ICU and her condition

I find that Dr Richards should have made contact with Dr O'Callaghan either at the time of Mrs Allan's admission or very soon afterwards and, at the very latest, by 2130 hours when he had carried out his initial assessment of Mrs Allan and made the decision to switch from adrenaline to noradrenaline.

6.20. Dr Richards had no good explanation about why he did not contact Dr O'Callaghan when making initial decisions about Mrs Allan's treatment. He said that he changed the adrenaline to noradrenaline because he did not think the adrenaline was working and that ICU would commonly run noradrenaline against milrinone and that adrenaline had the side effect of producing tachycardia and possibly arrhythmia. He said that he felt that his decision to make the change:

> '… was valid at the time and (I) wanted to give it some time to see if it worked I suppose. I admit I could have rung Dr O'Callaghan straightaway but I thought my decision to administer that drug was valid and wanted to see if we could get her better.' [128]

6.21. As to the matter of the Swan-Ganz catheter and Dr Richards' decision not to use one, Dr Richards said that he thought that it would be too dangerous to insert a catheter and that it was not going to alter her management[129]. The danger that he alluded to was the risk of arrhythmia which he said would have been catastrophic in Mrs Allan[130]. Dr Richards was asked why he did not consult Dr O'Callaghan about this subject and he said that he did think of ringing Dr O'Callaghan but he assumed that Dr

[127] Transcript, page 2492
[128] Transcript, page 1335-1336
[129] Transcript, page 1365-1366
[130] Transcript, page 1366

O'Callaghan would not want the Swan-Ganz catheter to be deployed. When asked why he made that assumption he responded:

> 'I'm not sure.' [131]

6.22. This really is an unsatisfactory response having regard to the clear evidence that a Swan-Ganz catheter was suggested by Dr Datta.

6.23. Dr Marshman, who provided an expert report at the request of the solicitors for Dr O'Callaghan[132], said that in his opinion the risks of inserting a Swan-Ganz catheter in the particular circumstances of Mrs Allan's case were quite low. He noted that central venous access was gained for a vascath later on in the evening. He added though that he did not think that the information gained from a Swan-Ganz catheter would have altered Mrs Allan's treatment, nor the ultimate outcome.

6.24. However, he did say that invariably in Sydney most patients have a Swan-Ganz catheter placed following the induction of anaesthesia and, furthermore, that the added information the Swan-Ganz catheter provides and the improved safety margin, particularly if unanticipated situations arise, 'can be extremely valuable'[133]. Furthermore, it was Dr Herkes' evidence that in his practice at the Royal Prince Alfred Hospital in Sydney, a Swan-Ganz catheter would invariably have been deployed. He too however, suggested that it would have been unlikely to make any difference in Mrs Allan's case. For the reasons expressed in paragraph 4.22, I do not place much weight on this aspect of Dr Herkes' evidence.

6.25. I find that Dr Richards should have made contact with Dr O'Callaghan and he should have appraised him of the dire nature of Mrs Allan's condition. He should have discussed with Dr O'Callaghan the proposal to change the inotropic regime from adrenaline to noradrenaline. He should also have informed Dr O'Callaghan that Dr Datta had suggested that a Swan-Ganz catheter be deployed and sought Dr O'Callaghan's guidance on whether that should or should not be done.

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[131] Transcript, page 1366-1367
[132] Exhibit C66
[133] Exhibit C66

6.26. Dr O'Callaghan should have attended Flinders Medical Centre ICU when he received the call from Dr Richards at 0210 hours

Dr O'Callaghan first spoke to Dr Richards at about 0210 hours[134]. Dr O'Callaghan said that he specifically reminded Dr Richards to keep the surgical team informed of Mrs Allan's progress[135]. Indeed, Dr O'Callaghan gave evidence that he assumed that the surgical team would have been contacted and appraised of the situation[136].

6.27. Dr Richards did not request Dr O'Callaghan to attend at ICU. Dr O'Callaghan gave evidence that during each telephone conversation he specifically asked Dr Richards if Dr Richards wanted him to attend ICU to assist and was assured it was not necessary[137]

6.28. In my opinion, that is not an adequate response by Dr O'Callaghan. Dr O'Callaghan, having been appraised of Mrs Allan's dire condition at 0210 hours, should have attended the ICU at that time. He was, after all, on-call and gave evidence that he was often required to attend the ICU while on-call during the middle of the night and had no qualms about doing so if necessary. In my opinion it was necessary for him to attend at 0210 hours to assess the situation for himself.

6.29. It is quite true that Dr O'Callaghan should have been called much earlier than 0210 hours and appraised of Mrs Allan's condition. In all probability, by 0210 hours the situation may not have been retrievable. Nevertheless, in my opinion Dr O'Callaghan should have attended to make that decision for himself.

6.30. Conclusions as to Mrs Allan's treatment in ICU

I find that the decision by Dr Richards to change Mrs Allan's inotrope from adrenaline to noradrenaline was based on his understanding that it was usual and common practice to run noradrenaline with milrinone. Dr Richards gave no particular consideration to the significance of adrenaline being run at a low dose.

6.31. I agree with Mr Knight's contention that if noradrenaline was going to be run, a Swan-Ganz catheter should have been inserted.

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[134] See Exhibit C38, page 44
[135] Transcript, page 1712
[136] Transcript, page 1713
[137] Statement of Dr O'Callaghan, Exhibit C64, paragraph 30

6.32. It will never be known whether, had Mrs Allan's inotropic regime been maintained with low dose adrenaline, she would have survived. Indeed, Mr Knight himself conceded that he did not know if, in those circumstances, Mrs Allan would have survived[138]. Dr Herkes' evidence in relation to adrenaline at low doses was significantly undermined by his failure to appreciate that the dose being administered to Mrs Allan was a low dose. It is significant that in neither the submissions of Dr O'Callaghan, nor those of the Flinders Medical Centre, is Dr Herkes' error on this point addressed. In my opinion, it colours much of what Dr Herkes had to say about Mrs Allan's prospects had adrenaline been continued and had a Swan-Ganz catheter been deployed.

6.33. On any view, it is clear that Mrs Allan's condition was grave upon her arrival in ICU. Dr Marshman probably had the most pessimistic view of all witnesses on this topic, describing Mrs Allan's arrival in ICU as grave and probably unsalvageable[139]. Nevertheless, even Dr Marshman did not assert that Mrs Allan's death was an inevitability. In my opinion, the decision to change the inotropic regime should not have been made without consulting Dr O'Callaghan as the intensive care consultant. Furthermore, it should not have been done without consulting Mr Knight. I would also add that the decision to change from adrenaline to noradrenaline should not have been made without the concurrent deployment of a Swan-Ganz catheter.

7. Credentialling

7.1. Background

The letter from Dr Sherbon[140] states the following in relation to credentialling:

> 'It appears that mandatory credentialling processes were not undertaken to ensure Mr Bidstrup's suitability to be involved in the treatment of patients.'

It is notable that the letter from Dr Sherbon describes the credentialling process as mandatory. The evidence as it unfolded at the Inquest was far from clear as to whether there were any such processes and, if there were, whether they were mandatory or not.

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[138] Transcript, page 2351
[139] Exhibit C66a
[140] See Exhibit C28h

7.2. The issue of credentialling was raised in the evidence of Ms Miller, the Chief Executive of the Flinders Medical Centre, Professor Aylward, Ms Reid, Ms Caldwell, Ms Howard, Dr Morton, Mr Bidstrup and Mr Knight.

7.3. It was submitted on behalf of Mr Knight that because, on the evidence, Mr Bidstrup did not take any significant part in Mrs Allan's surgery and, in particular, did not cannulate the left coronary artery, the issue of credentialling does not arise. It was submitted that nothing Mr Bidstrup did or did not do in his role in surgery could have contributed to Mrs Allan's cause of death.

7.4. As will appear from the relevant part of this finding[141], I agree with those submissions. Nevertheless, the matter of credentialling was addressed at length in the evidence and it has been established that the credentialling process at Flinders Medical Centre up until March 2010 was far from clear. It is in my opinion in the public interest that I make some findings about this issue.

7.5. There is in existence a national standard for credentialling and defining the scope of clinical practice[142]. The standard was developed by the Australian Council for Safety and Quality in Health Care for use by hospitals when verifying and evaluating the qualifications, experience, professional standing and other relevant professional attributes of clinicians and defining their scope of clinical practice within specific organisational settings. The standard is applicable to all clinical disciplines and the following principals are said by the Australian Council for Safety and Quality in Health Care to underpin the standard:

> '1) Credentialling and defining the scope of clinical practice are organisational governance responsibilities that are always conducted with the objective of maintaining and improving the safety and quality of health care services
>
> 2) Processes of credentialling and defining the scope of clinical practice are complemented by medical practitioner registration requirements and individual professional responsibilities that protect the community.
>
> 3) Effective processes of credentialling and defining the scope of clinical practice benefit patients, communities, health care organisations and medical practitioners.
>
> 4) Credentialling and defining the scope of clinical practice are essential components of a broader system of organisational management of relationships with medical practitioners.

[141] Paragraphs 8.1 to 8.15

[142] See Exhibit C19ab

5) Reviewing the scope of clinical practice should be a non-punitive process.

6) Processes of credentialling and defining the scope of clinical practice depend for their effectiveness on strong partnerships between health care organisations and professional colleges, associations and societies.

7) Processes of credentialling and defining the scope of clinical practice must be fair, transparent and legally robust.' [143]

From this it can be seen that modern health systems place a great deal of store in a proper system of credentialling. Indeed, they ought to do so for obvious reasons.

7.6. The evidence of Sheryn Reid

Ms Sheryn Reid is a Senior Human Resources advisor at the Flinders Medical Centre. She was interviewed by Samantha Jones of the Government Investigations Office on 8 October 2009 and a transcript was taken which was admitted as Exhibit C19a. It is clear on the evidence of Ms Reid and all other witnesses who gave evidence on this subject that Ms Reid is the person most knowledgeable about the history of credentialling at Flinders Medical Centre over the last 10 years. In particular she undertook the task of compiling a series of documents for Ms Jones which became attachments to her record of interview. She helpfully provided a document headed 'Credentialling and Scope of Practice'[144] which set out a chronology of the development of credentialling policies and processes at Flinders Medical Centre over that period.

7.7. In my opinion she knew more about this subject than any other witness.

7.8. Ms Reid was asked by Ms Jones whether the process of obtaining access to operate at Flinders Medical Centre is something that is generally known to the surgeons. Significantly, Ms Reid replied:

> 'I don't believe it is and this is why I flagged it … years ago.'

She went on to add that attempts had been made to devise a policy over the years. Various attempts were not successful. She refers to a policy document that was widely distributed at the relevant time but which did not actually contain a direction that the relevant processes need to be done within the Human Resources Department and done in a particular way[145]. She said that no policy at all existed in relation to

[143] See Exhibit C19ab
[144] Exhibit C19e
[145] Exhibit C19a, page 11

'access appointments', by which I take her to be referring to unpaid appointments such as would have been applicable to Mr Bidstrup's arrangement with Flinders Medical Centre. The following exchange appears in the record of interview:

'Ms Jones	And who would have the final approval in relation to that?
Ms Reid	Professor Knight can actually sign off on that, because there is no salary involved.
Ms Jones	And where is the authority written for him to be able to do that?
Ms Reid	It's not written.
Ms Jones	Okay, so how do you believe that Professor Knight can sign off on an access appointment:
Ms Reid	Good question. I can't answer that.' [146]

7.9. Tellingly, Ms Reid offered the following remark to Ms Jones without any prompting:

> 'I actually think that the lack of policies and procedures on this particular topic has made every doctor in this building vulnerable. And it has been flagged on several occasions in the past.' [147]

In the same vein, Ms Reid made the following remark at the end of the chronology to which I have already referred:

> 'In the absence of a credentialling committee structure as at 2008, any doctor may not know they had to apply for an access appointment or privileging rights for an unpaid visiting fully registered medical specialist unless they thought to ask their direct line manager, or HR or the division QS and Performance. A fully registered specialist without any special conditions or limitations on their MBSA practising registration certificate is permitted to perform unsupervised clinical treatment in this state.' [148]

7.10. <u>The evidence of Ms Miller</u>

Ms Miller was the Chief Executive at Flinders Medical Centre at the relevant time and she gave evidence at the Inquest. She also made a statement[149] in which she asserted:

> 'That if a doctor was to come from interstate to work in the hospital on an unpaid basis[150] there is a credentialling process that they have to go through, well if the process is successfully completed they obtain what we refer to as an unpaid access appointment at the hospital.'

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[146] Exhibit C19a, page 12
[147] Exhibit C19a, page 17
[148] Exhibit C19e
[149] Exhibit C39
[150] The statement actually, rather clumsily, uses the formulation 'other than through an employment contract' but I prefer to use the expression 'unpaid basis'

7.11. At the time she gave evidence she would, or should, have been aware of the content of Ms Reid's record of interview and the various documents attached to that record of interview concerning the history of privileging at Flinders Medical Centre. However, her evidence did not demonstrate any confidence or familiarity on the subject of credentialling at Flinders Medical Centre. She asserted in evidence in chief that there is a process called an 'unpaid access appointment' covering doctors wanting to work within Flinders Medical Centre but who are not going to be employed as part of an employment contract and that this was applicable at the time of Mr Bidstrup's arrangement with Flinders Medical Centre[151].

7.12. Importantly, the documentary evidence before the Court at the time Ms Miller gave her evidence (this documentary evidence was never disputed), was that there were two policy documents in existence at or about the time of Mr Bidstrup's arrangement at the Flinders Medical Centre at the end of 2008. The first of these documents was a procedure/guideline entitled 'Clinical Credentialling and Scope of Practice' bearing an effective date of 21 July 2005. That document was annexed to the statement of Professor Aylward, the Director of the Division of Medicine, Cardiac and Critical Care Services at Flinders Medical Centre[152]. The second document is a guideline entitled 'Clinical Credentialling and Scope of Practice' which was admitted as Exhibit C19ab. That document bore an effective date of September 2006, but it also bore the word 'DRAFT' in a watermark type style diagonally across each and every one of its pages.

7.13. At an early stage of her evidence, in answer to a question by Mr Whitington QC, Ms Miller asserted that the 2006 policy, by which I take her to have meant Exhibit C19ab (the document watermarked 'DRAFT'), was the policy that governed Mr Bidstrup's arrangement with Flinders Medical Centre, or would have had it been complied with[153].

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[151] Transcript, page 54
[152] Exhibit C55
[153] Transcript, page 76

7.14. However, shortly after this she contradicted herself when being questioned about the Sheryn Reid record of interview. When asked about Ms Reid's statement that there was no policy in relation to access appointments, Ms Miller said:

> 'At that time there probably was not but we know that the information was obtained by that unit.' [154]

She then conceded that there was nothing formally documented at that time[155]. She was asked whether Ms Reid was correct in stating that both the Divisional Director, Professor Aylward, and the Department Head, Mr Knight, had the ability to sign off on a request for someone coming in on an access appointment, to which she responded that there was not a policy so that would be an assumption[156]. Finally, she agreed that there was nothing in writing in relation to unpaid appointments[157].

7.15. As her evidence on this subject became more confused, she was asked whether there was anything written down that could establish precisely what was and what was not required for credentialling in 2008 and she responded that there was a policy dated 2006[158]. She also asserted that that policy applied to both paid and unpaid positions but that it was:

> '… not 'formally acknowledged in the policy. It was custom and practice.' [159]

Then she asserted that the policy[160] does not delineate between paid and unpaid but that the conditions for credentialling did not differ between paid and unpaid and that, as a result, the policy applied equally to paid and unpaid people - this being the 2005 policy. Shortly thereafter, she asserted that the 2006 document was the policy in force as at November 2008[161], thus contradicting herself once again.

7.16. Her evidence to that point had led me to understand that the 2006 policy - namely that with the word 'DRAFT' watermarked across it[162] was in existence within Flinders

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[154] Transcript, page 78
[155] That was in November 2008, Transcript, pages 78-79
[156] Transcript, page 79
[157] Transcript, page 80
[158] Transcript, page 101
[159] Transcript, page 101
[160] The 2005 policy - Transcript, page 107
[161] Transcript, page 108
[162] Exhibit C19ab

Medical Centre in a formal sense, namely that there would be a copy of the document in existence without the word 'DRAFT' appearing upon the document[163].

7.17. Shortly after I requested an unmarked final copy of the policy to be produced by counsel for Flinders Medical Centre, I permitted some further cross-examination of Ms Miller by counsel for Mr Knight. As a result of that further cross-examination, Ms Miller explained that the policy did not exist otherwise than in a draft form[164]. The following exchange occurred between the Court and Ms Miller shortly thereafter:

> 'Coroner — As far as Flinders Medical Centre is concerned, this document can be completely disregarded by anybody.
>
> Ms Miller — They're working to a document but it hasn't had the draft removed.
>
> Coroner — Now we're back to the situation then that this is not the policy that was in force in November 2008, contrary to what I asked you earlier and than what you told me earlier, with respect, Ms Miller.
>
> Ms Miller — This policy - I apologise but this policy was in force but it was enforced as a draft policy at that time, at November 2008.' [165]

7.18. It was then pointed out to Ms Miller that the later of the two policy documents, namely the one with 'DRAFT' watermarked upon it expressly referred to paid and unpaid appointments whereas the earlier policy referred only to 'appointments'. It was suggested to her that the earlier policy did not make any provision for unpaid appointments. She asserted that the earlier document nevertheless applied to unpaid appointments and then, interestingly, pointed to the following provision of the 2005 policy[166]:

> 'Temporary credentialling - locums and other clinicians appointed on a short term basis to provide health care services will have their credentialling undertaken by the Divisional Director or Department Head / Senior Clinical Manager of the relevant clinical discipline.'

This provision would have meant, if the 2005 policy were on foot at the time of Mr Bidstrup's arrangement at Flinders Medical Centre, that it was entirely within the power of Mr Knight as the head of the unit to have credentialled Mr Bidstrup. This is consistent with the evidence of Sheryn Reid[167].

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[163] Transcript, page 110
[164] Transcript, pages 118-119
[165] Transcript, page 120
[166] Exhibit C19ab
[167] Exhibit C19a, page 12

7.19. When Ms Miller was asked to acknowledge that there was a fair degree of ambiguity around the status of the actual document that was the policy in existence in November 2008, she was not prepared to do so and offered the following:

> 'Both policy guidelines are identical with the exception of the differentiation between unpaid and paid and the flow charting of the process. So when I say which one, it's an identical process, both require credentialling of an appointed person to Flinders Medical Centre whether it be a temporary, an emergency appointment or a salaried appointment.'[168]

7.20. In effect, Ms Miller seemed to be asserting that it did not really matter which of the two documents was in force in November 2008 because, on her assertion, both of them required that an unpaid visitor such as Mr Bidstrup be credentialled. In summary, the position seemed to resolve itself in this way. The 2006 draft document made specific reference to paid and unpaid credentialling requirements and its terms for credentialling were more strict than those of the 2005 document in that Mr Knight, as the head of the unit, would not under the 2006 draft document have had the authority to credential Mr Bidstrup. On the other hand, Mr Knight would have had the authority to do so under the 2005 document, assuming that document applied at all to an unpaid appointment. However, that document did refer to ‘appointments’ in a way that suggested employment was the basis of the appointment. Furthermore, an attached form reinforced that conclusion[169]. In my opinion, it is clear that the 2006 draft document could never have been applicable while it remained a draft. It may have been widely promulgated through administrative staff of the Flinders Medical Centre but any person such as Mr Knight who would not have had a knowledge of the byzantine policies of the Human Resources Department of Flinders Medical Centre and its idiosyncratic views about the applicability of documents entitled ‘DRAFT’, would have assumed, even if he was aware of its existence, that the document was merely a draft and was therefore not applicable. There was no evidence that Mr Knight was aware of the terms of either the 2005 policy or the 2006 draft policy. However, even if he had been required to be, or if it was expected of him that he would be familiar with them, he would have been entitled to assume that it was the 2005 document that was applicable in November 2008 and not the 2006 draft document.

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[168] Transcript, page 122
[169] Transcript, page 125

7.21. I conclude that the relevant document that applied in 2008 was the 2005 document. If that document had no application to unpaid appointments, then there was no requirement that Mr Bidstrup be credentialled at all in November 2008. If on the other hand the 2005 document somehow was applicable to an unpaid arrangement, notwithstanding the elements of the document indicative of application to employed appointments, then Mr Knight would in any event have had the ability to credential Mr Bidstrup. On any view, the notion that mandatory credentialling processes had not been carried out, and that Mr Knight bore some responsibility for that, is wrong.

7.22. Professor Aylward

It is notable that Professor Aylward's statement[170] contains the following:

> 'There has been a hospital policy in place since 21 July 2005 covering credentialling and scope of practice for clinicians appointed by Flinders Medical Centre. I provided a copy of this to Detective Nash and it has been marked Appendix A and attached to this statement. I quote from this policy about temporary credentialling that 'locums and other clinicians appointed on a short term basis to provide health care services will have their credentialling undertaken by the Divisional Director or Department Head / Senior Clinical Manager of the relevant clinical discipline.' [171]

7.23. Ms Miller must have been aware of this view that appeared to be held by Professor Aylward at the time at which she gave evidence.

7.24. Overall, the effect of Ms Miller's evidence was that she appeared to maintain the belief that Mr Bidstrup was required to be credentialled in November 2008, and that somehow Mr Knight and Mr Bidstrup were at fault for that not having occurred. I am critical of Ms Miller's evidence. She exhibits extreme confusion about the credentialling arrangements at Flinders Medical Centre in the period as at November 2008. Furthermore, some 3 months after she gave evidence, she made a further affidavit that was tendered as Exhibit C39b[172]. That affidavit exhibited a new policy on credentialling and scope of practice dated March 2010[173]. Thus, it was not until March 2010 that the ambiguity in relation to the applicable policy in relation to credentialling and scope of practice at Flinders Medical Centre was finally resolved. In my opinion, the document that was applicable up until that time must have been the 2005 document. It is most unfortunate that, as Chief Executive of the Flinders Medical Centre, Ms Miller did not readily acknowledge when giving her evidence in

[170] Exhibit C55
[171] This is the 2005 policy document to which I have already made reference
[172] It was dated 22 March 2010
[173] Exhibit C39b

November 2009, that the matter of credentialling at Flinders Medical Centre at all times including and between November 2008 and November 2009 was ambiguous and uncertain and would only be rectified with the introduction of the policy due to be released in March 2010.

7.25. Mr Knight's beliefs as to credentialling requirements

As I have noted, it is not strictly necessary for me to deal with the matter of Mr Bidstrup's credentialling having regard to my conclusion that no act or omission of Mr Bidstrup in the course of the surgery on Mrs Allan was causative of her death. I have dealt with the matter of credentialling to record the unsatisfactory state of affairs that existed at Flinders Medical Centre in relation to that very important issue over a lengthy period only ending in March 2010. It is not necessary for me to say more than I already have said, but out of deference to the careful evidence of Mr Knight in relation to this issue, I record that I accept his evidence as to the telephone conversation between him and Professor Aylward when Mr Knight was being driven in his motor vehicle by his partner on 21 October 2008. Professor Aylward said that he had no memory of this conversation but did not deny that it occurred. I find that it did occur in the manner described by Mr Knight and Ms Thomas. Mr Knight thereafter assumed that everything that was required to be done as far as Mr Bidstrup's credentialling was concerned, had been done.

7.26. Mr Bidstrup was credentialled at Flinders Private Hospital

I should record that at all times in November 2008 Mr Bidstrup had appropriate credentialling to operate in the theatres of Flinders Private Hospital, having obtained the credentials from that hospital in preparation for his visit. I have found that it was by no means clear that Mr Bidstrup was not appropriately credentialled for Flinders Public Hospital. However, this was contested by Flinders Public Hospital at the Inquest. It submitted that there was a policy in effect at Flinders Public Hospital and that Mr Bidstrup was never duly accredited. Further, that Mr Knight and Mr Bidstrup knew, or should have known, that it was necessary for more to be done than was done in order to obtain credentialling for Mr Bidstrup. As will be apparent, I do not accept that submission for the reasons I have already given. Interestingly, the submissions on behalf of Flinders Public Hospital implicitly acknowledge the possibility that there may not have been a formalised policy for credentialling in the circumstances

applicable to Mr Bidstrup[174]. The tenor of Flinders Public Hospital's position in the Inquest was that there was an element of impropriety surrounding Mr Bidstrup's asserted lack of credentials at Flinders Public Hospital and that Mr Knight and Mr Bidstrup both bore some responsibility. This contention was never made good. I would add a further observation in addition to those made above. It would be an unusual and unexpected thing for Mr Bidstrup to have appropriately accredited himself at Flinders Private Hospital and knowingly or deliberately failed to do so at Flinders Public Hospital. To suggest some form of impropriety in his asserted failure to do that when he was known to have obtained the appropriate credentialling at Flinders Private Hospital, simply makes no sense.

7.27. It will be recalled that in Dr Sherbon's letter to the State Coroner, the matters referred for consideration included the possibility that 'the hospital management and staff within the unit were not aware of the arrangement for Mr Bidstrup to attend at Flinders Medical Centre. The further possibility was raised that Mr Knight had:

> '… apparently failed to clarify Mr Bidstrup's role in the operating theatre with the registrar, Dr Datta'. This resulted in Dr Datta's assumption that Mr Bidstrup was to be regarded as the senior surgeon in the operation on Mrs Vera Allan.'

7.28. Finally, the possibility was raised of:

> ' An inconsistency with the clinical records, in the Operation details Mr Knight is listed as the surgeon and Mr Bidstrup is listed as a team extra, but not as an assistant. The operation sheet signed by Mr Knight does not list Mr Bidstrup as being present. The nursing count record and the peri-operative nursing record list Mr Bidstrup as an assistant.'

The evidence at the Inquest, and particularly the evidence of Dr Datta, dispelled any question that Dr Datta was under any misapprehension about who was to take over in the absence of Mr Knight from the theatre during the surgery on Mrs Allan. For my part, I conclude that Dr Datta was under no misapprehension about that matter.

7.29. As to the possibility that hospital management and staff within the unit were not aware of the arrangement, it is my opinion that that concern can also be put aside. The evidence showed that Drs Cullen, Lance and Bennetts must have been aware of the reasons for Mr Bidstrup's presence. None of them objected at the time or raised

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[174] See submissions on behalf of Southern Adelaide Health Service and others, page 16

the matter to the level of Professor Aylward or the Chief Executive of Flinders Medical Centre.

7.30. Dr Cullen and Professor Aylward were aware of Mr Bidstrup's possible visit in 2007 to Flinders Medical Centre and the purpose of the visit at that time. They were provided with correspondence from the Queensland Medical Board regarding the concerns raised about Mr Bidstrup. Nothing had changed in 2008. I find that Dr Cullen and Professor Aylward must have been aware of the presence of Mr Bidstrup and the reason for his visit.

7.31. I agree with the submission on behalf of Mr Bidstrup that so far as the surgical registrars and other medical staff were concerned, the fact that Mr Bidstrup was standing in the second surgical assistant's position during Mrs Allan's operation should have been a clear enough message that there were restrictions of one kind or another on what he could do and that he must have been present for some other purpose other than to act as a consultant. The most logical purpose would be some form of training or refreshment.

7.32. As to the members of the Cardio-Thoracic Surgical Unit, the fact is that Mr Knight introduced Mr Bidstrup at a unit meeting on the morning of 18 November 2008 before Mr Bidstrup started in the unit. The meeting would have been attended by as many nursing staff, registrars, consultants and perfusionists as were available to attend. Certainly, Dr Cullen, Dr Lance and Dr Bennetts were present and Dr Bennetts was the Chair. Mr Knight introduced Mr Bidstrup to those present[175], Mr Knight recalled that he said words to the effect that:

> 'Mr Ben Bidstrup is with us today.' [176]
> 'He is a cardiac surgeon from Queensland who'll be with us for a couple of weeks.' [177]
> 'He will be involved in the operating room with me observing and scrubbing in public and private cases doing a refresher in cardiac surgery.' [178]
> 'I'd like him to see as many cases across the unit as possible, would you all please make him welcome.' [179]

7.33. Mr Knight said that he had no memory of using the word 'sabbatical' and strongly doubted that he would have done so[180].

[175] Transcript, page 1464, 1581
[176] Statement of Mr Knight, Exhibit C62, paragraph 48.5.1
[177] Statement of Mr Knight, Exhibit C62, paragraph 48.5.2
[178] Statement of Mr Knight, Exhibit C62, paragraph 48.5.3
[179] Statement of Mr Knight, Exhibit C62, paragraph 48.5.4

7.34. Mr Bidstrup thought it was possible that Mr Knight may have said that he, Mr Bidstrup, was on 'sabbatical' when introducing him at the meeting[181]. Mr Bidstrup said that he did not think there was a distinction between sabbatical and refresher[182].

7.35. It is possible that Mr Bidstrup used the word sabbatical. There is no evidence to the effect that Mr Knight did so. There is certainly no evidence to the effect that Mr Knight did so in an effort to disguise or hide the purpose of Mr Bidstrup's visit to the unit. It would have been utterly pointless to have attempted any such thing in view of the knowledge already possessed by Dr Cullen and Professor Aylward, and no doubt by many others in the cardio surgical community. It is simply implausible to think that Mr Knight and Mr Bidstrup would have attempted to disguise the true purpose of the visit.

7.36. To the extent that Mr Knight may have been tactful or diplomatic in his description of the purpose of Mr Bidstrup's visit to junior staff or nursing staff - and there is no evidence to suggest that he did - it would be natural for one consultant to treat another consultant in that manner. For his own part, out of a sense of self respect, Mr Bidstrup may have been at pains to avoid the subject of the real purpose of his visit. Nevertheless, those who needed to know either did know or should have known the reason for his visit. Finally, to the extent that any registrar may have been under any misapprehension, Mr Bidstrup's position at the surgical table - in the case of Mrs Allan's surgery in the second surgical assistant's position - would have left Dr Datta in no doubt that Mr Bidstrup was playing a lesser role in the surgery than Dr Datta himself was.

8. Dr Datta's interview by Ms Howard and Dr Morton

8.1. Dr Morton and Ms Howard were investigating Mr Bidstrup's involvement in Mrs Allan's surgery on behalf of Flinders Medical Centre. They interviewed Dr Datta on 12 August 2009. Dr Morton and Ms Howard were concerned about the relationship of the dissection tear to the administration of cardioplegia[183].

8.2. During the interview Dr Morton asked most of the questions and Ms Howard took notes. Ms Howard said that she did not have a good understanding of the clinical

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[180] Statement of Mr Knight, Exhibit C62, paragraph 48.6
[181] Transcript, page 1637
[182] Transcript, page 1604
[183] Transcript, page 958

issues that were being raised during the course of the meeting. Dr Morton herself was not an expert in the area of cardiac surgery.

8.3. Ms Howard's notes were submitted in evidence in a handwritten form, being the notes taken during the interview, and a typed version which went through a series of amendments during discussions between Dr Morton and Ms Howard[184]. Both Dr Morton and Ms Howard went away from that interview believing that Dr Datta had said that Mr Bidstrup had cannulated the left main artery for the purposes of administering the cardioplegia. As a result of that belief Dr Sherbon was in due course advised that it was suspected that Mr Bidstrup had cannulated the artery subsequently found to be dissected.

8.4. Neither the handwritten version of the notes nor the typewritten version was shown by Dr Morton or Ms Howard to Dr Datta.

8.5. For his part, Dr Datta's recollection of the meeting was that he did not believe he would have said in so many words that Mr Bidstrup had cannulated the artery. Dr Datta said that he was shocked when he found out that the notes recorded him as having said such a thing.

8.6. Indeed, the only evidence that has ever existed to suggest that Mr Bidstrup cannulated the left main artery is the record of this meeting between Dr Datta, Dr Morton and Ms Howard. Every other account has been to the opposite effect. In one sense it does not matter because it is not possible to conclude that the small tear in the left main artery was the cause of Mrs Allan's deterioration, nor that the tear was caused in the course of the cannulation of the left coronary artery for the purposes of the administration of cardioplegia. Nevertheless, because the issue assumed such a high level of importance, and led to the matter being raised with Dr Sherbon and the subsequent investigations, and in deference to the significant amount of evidence devoted to this topic at the Inquest, I propose to deal with it.

8.7. The evidence is clear that at a mortality and morbidity meeting of the Cardio-Thoracic Surgery Unit in early December 2008, Dr Datta presented Mrs Allan's case to the meeting. It is quite clear that in his presentation Dr Datta told the meeting that it was he who had administered the second dose of cardioplegia. That subject was discussed with Mr Knight in the course of the meeting. Mr Knight had queried with Dr Datta

[184] The handwritten notes appear as Exhibit C18aj and the typed drafts are Exhibit C18al, C18am, C18n and the final version is

the need for a second dose of cardioplegia. Mr Knight had counselled Dr Datta about the need for avoiding a second dose of cardioplegia if possible, although having considered the matter in retrospect, Mr Knight eventually concluded that it was reasonable to administer a second dose of cardioplegia in the circumstances and he had no criticism to make of Dr Datta in having done so. Nevertheless, the issue was discussed in the mortality and morbidity meeting in terms which made it plain that it was Dr Datta who was accepting responsibility for having administered the second dose of cardioplegia. There was no suggestion in that meeting that it was Mr Bidstrup who had done so.

8.8. Following the interview between Dr Datta, Dr Morton and Ms Howard, Dr Datta was next asked to recall the circumstances of the surgery when interviewed by Ms Jones of the Government Investigations Unit on 29 September 2009, some six weeks after his meeting with Dr Morton and Ms Howard. In that record of interview Dr Datta said that he gave the dose of cardioplegia. He was asked if Mr Bidstrup played any part in the surgery and he said that Mr Bidstrup actively assisted him by holding the sutures to help put the valve in, holding the valve and helping Dr Datta guide it in. He also said that Mr Bidstrup may have helped him by holding the cannula that was administering the second dose of cardioplegia into the left main coronary artery after Dr Datta had already introduced the cannula and was doing something else. He provided a similar account when interviewed by Senior Constable Ferraro on 27 November 2009[185].

8.9. Dr Datta was cross-examined at length about the record of the meeting between him, Dr Morton and Ms Howard. Dr Datta remained unshaken in his version that he did not believe that he would have said to Dr Morton and Ms Howard that Mr Bidstrup cannulated the artery.

8.10. Some time was devoted to cross-examining Ms Howard and Dr Morton in relation to the accuracy of the notes. There are certain differences between the handwritten notes and the typewritten notes. For example, the handwritten notes[186] state:

> 'Who gave second dose of cardioplegia Dr D → I tried and then Dr B tried to put in left side. Dr B → catheter in artery dissected.'

On the other hand, the final typed version of the notes relevantly states:

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[185] The record of interview with Ms Jones is Exhibit C46a. The statement to Senior Constable Ferraro is Exhibit C46f
[186] Exhibit C18aj

'Dr B had cannulated the artery that had dissection.'

And further:

'SM asked who had given the second dose of cardioplegia and confirmed that this was done by cannulating the coronary artery. AD stated that he had tried but then Dr B had tried to put it in the left side. Dr B placed the catheter in the artery subsequently found to be dissected.' [187]

8.11. Dr Datta gave evidence that he did not believe that he would have ever said that he had attempted to cannulate the left coronary artery and failed because his recollection was that he had had no difficulty putting the cannula in the left side[188]. Furthermore, Dr Datta did not believe he could have said that Mr Bidstrup had cannulated the artery that had the dissection, or the artery subsequently found to be dissected, for the simple reason that it was never established that the artery was in fact dissected[189].

8.12. Various theories were offered by different interests with a view to explaining these two versions of events. To the extent that it is necessary to resolve what precisely occurred in the meeting on 12 August 2009, it is my view that the most probable explanation is that there was a misunderstanding between Dr Datta on the one hand and Dr Morton and Ms Howard on the other, which probably arose quite naturally. The following passages of Dr Datta's evidence cast some light on this:

'Q. Are you able to remember now what you did say.

A. I said what I've said subsequently. I put in the cannula, Dr Bidstrup might have - might have held that cannula when I was doing something else, or something to the same effect. I do not remember exactly what I said but something to that same.' [190]

'Q. Well, did you say that Dr Bidstrup had cannulated the artery that had a tear, or words to that effect.

A. I would have said I cannulated it sir, or I would have used the term 'we' sir, I really do not recall what word I said sir.' [191]

'Q. Well, do you say that you made no mention at all of Dr Bidstrup being involved in any way in the giving of the second dose of cardioplegia, just wasn't something you talked about.

A. I still feel that he had probably held the cardioplegia cannula after I had put it in sir, that is what I sincerely believe has happened.' [192]

[187] See Exhibit C16b
[188] Transcript, pages 659-661
[189] Transcript, page 657
[190] Transcript, pages578-579
[191] Transcript, page 657

8.13. Dr Datta consistently gave evidence in his records of interview, in his statement and in his oral evidence that Mr Bidstrup may have held the cannula administering the cardioplegia after Dr Datta had already introduced it into the coronary artery. He never waivered from that position. It is easy to see that Dr Morton and Ms Howard may have taken Dr Datta to mean that the cannula was introduced by Mr Bidstrup if Dr Datta was instead meaning to say that it was merely held by Mr Bidstrup after he himself had introduced it. The situation is further confounded by Dr Datta's use of the term 'we' in his record of interview with Government Investigator, Samantha Jones[193]. Dr Datta himself acknowledged his use of the term 'we' in one of the passages of evidence quoted above and offered that as a possible explanation for the way in which his words were transcribed.

8.14. In addition to these matters, I had the opportunity of observing Dr Datta in the witness box. He was not an assertive person and it was also quite clear that when he was being interviewed by Dr Morton and Ms Howard he was extremely nervous. It may well be that his use of language was not as clear as it might have been for that reason.

8.15. In any event, I find that it was Dr Datta who inserted the cannula for the purposes of administering the second dose of cardioplegia.

9. Mr Knight's theory that the issues surrounding Mrs Allan's surgery were raised and promoted by Dr Cullen and Dr Lance

9.1. From an early stage in the evidence, namely in questions directed to Ms Miller by counsel for Mr Knight, it was clear that on behalf of Mr Knight it was being advanced that Dr Cullen or Dr Lance had promoted an allegation that an uncredentialled doctor, Mr Bidstrup, had participated in Mrs Allan's operation and had cannulated Mrs Allan's artery and that cannulation had some particular connection with her death[194].

9.2. The evidence established that Mr Knight, on behalf of some staff members in the Cardio-Thoracic Surgical Unit, had raised concerns about the behaviour of Dr Cullen with Professor Aylward and subsequently with Ms Miller. On 5 August 2009 Mr Knight's solicitors had written to Ms Miller urging her to bring the investigation of the allegations about Dr Cullen to a conclusion.

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[192] Transcript, page 661
[193] See Exhibit C46a, page 19 where he said 'we checked the coronary ostia' when he clearly meant that he checked the coronary ostia as only one person could carry out that task
[194] Transcript, pages 81-98

9.3. On 6 August 2009 - the following day - the allegations concerning the surgery of Mrs Allan were first raised with Ms Miller[195].

9.4. In Mr Knight's submissions he has strongly urged that I make findings that Dr Cullen and Dr Lance set about promoting and advancing these allegations for ulterior purposes.

9.5. It was submitted on behalf of Mr Knight that the Court had 'indicated that it would receive evidence in the course of Mrs Allan's Inquest as to the circumstances in which its jurisdiction has been invoked'[196]. At that time, in response to an objection taken by Mr Holland to a question asked of Professor Aylward by Mr Whitington, Mr Whitington said:

> 'I am then leading into other events in 2009 which are connected with this and let there be no doubt about it, it will be our submission at the end of the day that an atmosphere was fomented and fostered within the department against Mr Knight and the events of the Vera Allan operation were used by others in the cardiac unit to foment a complaint against him and in effect blow it out of all proportion.' [197]

At the time I responded:

> 'It seems to me, Mr Holland, that although much of this isn't directly relevant to the cause and circumstances of Mrs Allan's death much of it relates to the credibility of allegations that are, or versions of the event that are in dispute and the genie is out of bottle by and large. The issue has been fairly extensively canvassed already and if what Mr Whitington has to say or ultimately contends has some substance then that goes to I suppose the very foundation of the allegations on which or which ultimately led to a decision to hold this inquest. It's very difficult for me in those circumstances to close this out.' [198]

After further submissions, the question was allowed. My final observation was as follows:

> 'And I'd just also make the observation that the Court's jurisdiction to determine what is its jurisdiction, is a wide jurisdiction. It may turn out that much of this is not useful or relevant to me and has no bearing on what I might ultimately write about, but I won't know that until it's been aired.' [199]

The contentions advanced on behalf of Mr Knight went squarely to the credibility of various witnesses. Questions were allowed to be asked concerning motivations, the

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[195] Transcript, page 87
[196] Transcript, pages 1219-1222
[197] Transcript, page 1218
[198] Transcript, page 1219
[199] Transcript, page 1222

timing of events and conversations to test the credibility and reliability of particular witnesses.

9.6. To that extent, questions about whether an allegation that Mr Bidstrup had not been credentialled and had performed a task in the course of Mrs Allan's surgery that had caused, or contributed to, her death were being raised for an ulterior purpose were, in my opinion, relevant. Having found, as I have, that there really was no controversy about whether Mr Bidstrup cannulated Mrs Allan's coronary artery, it is not necessary for me to go into the question of whether an ulterior motive existed for the making of the allegations. Similarly, the issue of credentialling fell under the weight of the confusing evidence surrounding the existence of a formal policy on that subject. Again, it was not necessary to deal with that issue for me to look into the motives of those who may have fomented the issue.

9.7. Neither Dr Cullen nor Dr Lance was called to give evidence. Neither of them could say anything about the cause and circumstances of Mrs Allan's death. It would have been inappropriate to have called them in those circumstances. While I remain of the opinion that it is appropriate for the Court to receive evidence as to the circumstances in which its jurisdiction has been invoked, it has never been sufficiently clear that the Court's jurisdiction was invoked improperly to warrant calling those alleged to have been responsible for that. There may be cases in which that might be appropriate. However, this Inquest has raised sufficient issues of substance, particularly the erroneous cause of death accepted in the finding dated 23 February 2009, and those relating to Mrs Allan's treatment in ICU, to justify a conclusion that it was necessary or desirable to hold an Inquest into the cause and circumstances of Mrs Allan's death.

9.8. As I have not heard from Drs Cullen or Lance, and as I do not intend to do so for the reasons expressed above, it would be wrong for me to express any opinion about their role - if any - in promoting allegations about Mrs Allan's surgery and their motivation for doing so.

10. Recommendations

10.1. The Court has jurisdiction to make recommendations pursuant to section 25(2) of the Coroners Act 2003. I acknowledge the helpful submissions of Mr Knight in making the recommendations that follow:

1) That Flinders Medical Centre ICU staff who are involved in the care of patients following cardiac surgery, should attend the regular mortality and morbidity meetings held by the Cardiac Unit;

2) That Cardiac Unit and ICU heads, together with Flinders Medical Centre senior management, address questions raised in relation to communication issues between the Cardiac Unit and ICU[200];

3) It should be mandatory for ICU staff to confer with members of the surgical team at any point at which they determine it is necessary or appropriate, to alter a drug regime chosen by the surgical team that is still being administered at the point of handover to ICU;

4) That Flinders Medical Centre protocols and policies on communication between junior ICU staff and consultant intensivists should be reviewed with the aim of improving patient care and continuity of care;

5) That Flinders Medical Centre protocols and policies in relation to the attendance of consultant intensivists at ICU should be reviewed with a view to requiring a consultant intensivist to attend a patient admitted to ICU in circumstances where they are not otherwise present at handover;

6) That it should be mandatory for the on-call consultant intensivist to be directly involved in a patient's management plan on admission, whether by telephone or in person (depending upon the complexity and seriousness of the patient's condition upon admission);

7) That Flinders Medical Centre protocols and policies in relation to completing the Death Report to Coroner should be reviewed to ensure that the medical practitioner who was directly involved in the patient's care completes the deposition;

8) That Flinders Medical Centre protocols and policies should be reviewed as to record keeping, particularly in respect of anaesthetic and ICU charts in order that ambiguities and handwritten records that are later required to be interpreted by other persons, including the Coroner, can be minimised and that, in

[200] The evidence of Mr Knight made it quite plain that as Head of the Cardiac Unit he felt that there was a lack of communication and that his input into patient care in ICU was not welcomed. Dr O'Callaghan was not of the same opinion. Nevertheless, the fact that the Head of the Cardiac Unit might hold that view is, in itself, a sufficient basis on which to address the issue.

particular, records of drugs administered in precisely the dosages at precisely the times administered, should be recorded clearly on all such charts;

9) That Flinders Medical Centre protocols and policies should be reviewed in relation to the use of Swan-Ganz catheters;

10) That all Flinders Medical Centre ICU staff should receive training on the insertion of Swan-Ganz catheters with the aim of ensuring that patients who require haemodynamic monitoring get the level of care required;

11) That the adequacy of Flinders Medical Centre's credentialling of existing doctors and other medical staff should be reviewed and the circumstances surrounding Flinders Medical Centre's credentialling of doctors and other medical staff in late 2009 should be investigated by an appropriate independent authority.

Key Words: Surgery; Hospital Treatment; Intensive Care Unit

In witness whereof the said Coroner has hereunto set and subscribed his hand and

Seal the 28th day of March, 2011.

State Coroner

Inquest Number 35/2009 (1748/2008)