

**SHERIFFDOM OF SOUTH STRATHCLYDE, DUMFRIES AND GALLOWAY
AT AIRDRIE**

[2016] FAI 4

B83/15

DETERMINATION

BY

SHERIFF FRANK PIERI

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

into the death of

ROBERT YOUNG BAIRD

Airdrie, 9 December 2015 The Sheriff, having heard evidence and having resumed consideration of the cause Finds and Determines that:-

- 1) In terms of Section 6(1)(a) of the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976 (the 1976 Act) Robert Young Baird who was born on 12th March 1974 and who lived in North Lanarkshire died at Monklands General Hospital, Airdrie on 27th March 2010 at 12:00 hours.
- 2) In terms of Section 6(1)(b) of the 1976 Act: the cause of his death was hemopericardium due to thoracic aortic dissection.
- 3) In terms of Section 6(1)(c) of the 1976 Act: a reasonable precaution whereby the death and the accident resulting in the death might have been avoided was for Mr Fraser Sutherland, Consultant Cardiac Surgeon at the Golden Jubilee Hospital in Clydebank to have sought experienced consultant radiology opinion on the CT Scan performed at Monklands General Hospital.

4) In terms of Section 6(1)(d) of the 1976 Act: there is no finding about defects in any system of working which contributed to the death.

5) In terms of Section 6(1)(e): there are no other facts which are relevant to the circumstances of the death.

NOTE

Introduction

[1] This is an Inquiry into the death of Robert Young Baird who died in Monklands General Hospital Airdrie a few days after his 36th birthday. His death has understandably had a profound effect on his family. His sister, Mrs Lorraine Gilmour, gave evidence in the course of this Inquiry and her love for her brother and the sense of loss occasioned caused by his death were obvious. I offer my sympathy and condolences to Mr Baird's family.

[2] At the Inquiry the Crown was represented by Ms J Speirs, Procurator Fiscal Depute. The only other party represented was the NHS Board responsible for the Golden Jubilee National Hospital in Clydebank, the National Waiting Times Centre Board (the Board). The Board was represented by Ms Doherty, Advocate.

[3] The following witnesses gave evidence at the Inquiry:

- 1) Miss Lorraine Gilmour, the sister of the deceased.
- 2) Dr Ian McLaren, Accident & Emergency consultant.
- 3) Dr Alastair McGhee, consultant radiologist.
- 4) Dr Alister Pell, consultant cardiologist.
- 5) Dr Robert Ainsworth, forensic pathologist.
- 6) Dr Nikolaos Tzemos, consultant cardiologist.
- 7) Dr Raheel Syeed, respiratory consultant.

- 8) Dr Andrew McCulloch, now consultant cardiologist.
- 9) Mr Fraser Sutherland, consultant cardiac surgeon.
- 10) Mr Edward Brackenbury, consultant cardiothoracic surgeon.
- 11) Dr Peter Bloomfield, consultant cardiologist.
- 12) Mr Vapin Zamvar, consultant cardiothoracic surgeon.
- 13) Dr John Reid, consultant radiologist.

[4] Mr Zamvar, Dr Reid, Dr Bloomfield and Mr Brackenbury all produced reports for the Inquiry, Dr Bloomfield's report forms Productions 8 and 9 for the Crown, Mr Brackenbury's is production 10 for the Crown and Dr Reid's is Production 3 for the Crown. Mr Zamvar's report is Production 1 for the Board. Dr Ainsworth drew up the post-mortem report and that is Production 2 for the Crown.

BACKGROUND

[5] Much of the background leading up to Mr Baird's death is not controversial.

[6] Mr Baird suffered a sub arachnoid haemorrhage about 15 years before his death. That left him paraplegic. At that time he was in his early 20s. He overcame his disabilities with spirit and led a full life. He was in employment. He was a single man who enjoyed travel and socialising and had a lively sense of humour.

[7] He died at Monklands General Hospital, Airdrie at 12 noon on 26th March 2010. The post-mortem carried out by Dr Robert Ainsworth, forensic pathologist, revealed that the cause of death was hemopericardium (blood in the pericardial sac) due to thoracic aortic dissection.

[8] Aortic dissection takes place when there is a tear in the inner layer of the wall of the aorta, the intima, allowing blood to flow between the layers of the wall of the aorta.

This forces the layers apart. It very quickly leads to death and treatment of aortic dissection is a race against time.

[9] In general death can result from aortic dissection because of:-

- a) tamponade. (That is where the pericardial sac fills with blood and the heart cannot beat any more.)
- b) a massive myocardial infarction or coronary,
- c) a massive stroke, or
- d) exsanguination, where the body blood volume empties into the chest.

[10] Aortic dissection is one of the most lethal of all surgical conditions affecting the aorta. It is estimated that 20% of patients suffering from aortic dissection die before reaching hospital. Of those who reach hospital 20% will die within 24 hours and 30% within 48 hours without surgery. Surgery itself carries a 30% operative mortality. Each hour lost involves a 1-2% increase in mortality. It can be seen from all this that it is an acutely time sensitive condition.

[11] Typically aortic dissection affects males aged over 60. It is not a common condition. For example, at the Golden Jubilee National Hospital in Clydebank which is a local centre for cardiothoracic surgery in the West of Scotland, aortic dissection leads to about 12 operations a year.

[12] In the early hours of Friday 26th March 2010 Mr Baird complained to his family of severe chest pain. He was admitted to the Accident and Emergency Unit at Monklands General Hospital. A chest X-ray showed a widened mediastinum. That can indicate aortic dissection. All other observations were however normal.

[13] Dr McLaren was the on-call Accident and Emergency consultant at Monklands General Hospital at the time. He was contacted at home and was made aware of Mr Baird's medical history. He was concerned that Mr Baird's history of a sub arachnoid haemorrhage leading to paraplegia, in itself a highly unusual condition, might indicate

some weakness or predisposition to injury in Mr Baird's blood vessels. That taken together with the widening of Mr Baird's mediastinum and the severe chest pains he was experiencing led Dr McLaren to believe that Mr Baird might be suffering from an aortic dissection despite his young age. Dr McLaren therefore arranged for a CT scan to be carried out on Mr Baird.

[14] A CT scan uses a combination of several X-ray images taken from different angles to produce cross sectional images of parts of the body. The CT scan was carried out at Monklands General Hospital at 6.53am and was reported on by a consultant radiologist Dr Alastair McGhee.

[15] Dr McGhee's report on the CT scan is to be found at page 190 of Crown Production No.5. In that report Dr McGhee states:

"there is abnormal soft tissue density around the ascending aorta and aortic arch, consistent with haematoma. This extends along the pulmonary arteries and there is also a small pericardial effusion. No evidence of active bleeding. There is a possible small dissection flap arising from the posterior surface of the aortic root at the level of the aortic flap (*sic*, in evidence Dr McGhee confirmed this is a typographical error and it should state aortic root). It could however be motion artefact. No evidence of dissection in the arch, descending aorta or great vessels. The coronary vessels cannot be assessed on CT but they are at obvious risk."

[16] Dr McGhee was almost certain that Mr Baird was suffering from aortic dissection based on this CT scan and said as much to Dr McLaren.

[17] The CT scan was, in common with most CT scans, not a gated CT scan. A gated CT scan takes images in time with the heartbeat and so distortion or corruption of the image due to any movement caused by the heart beating is eliminated. This corruption of the image due to movement is referred to as motion artefact. Motion artefact can also be caused by a patient breathing or moving his body while the scan is being taken and a gated scan does not eliminate these forms of motion artefact.

[18] In short Dr McGhee's report described blood around the ascending aorta and aortic arch extending along the pulmonary arteries, a small pericardial effusion and a possible dissection flap which Dr McGhee stated could however be motion artefact rather than a dissection flap.

[19] Having discussed the matter with Dr McGhee and having considered Dr. McGhee's report on the CT scan Dr McLaren believed Mr Baird was suffering from an aortic dissection and asked that Mr Baird be transferred to the Golden Jubilee Hospital for cardiac surgery. Cardiac surgery is not carried out in Monklands General Hospital.

[20] Dr Workoski, a junior doctor on duty at Monklands General Hospital A & E Department, contacted the Golden Jubilee Hospital to arrange to have Mr Baird transferred there. Mr Fraser Sutherland, consultant cardiac surgeon, was the consultant surgeon on duty that morning at the Golden Jubilee Hospital. He considered there was uncertainty over the diagnosis and asked Monklands General Hospital to carry out a Transesophageal Echocardiogram (a TOE) on Mr Baird.

[21] A TOE is carried out by a cardiologist. During this procedure a probe is lowered into the patient's oesophagus. Using ultrasound this probe gives a good view, from the oesophagus, of something over two-thirds of the ascending aorta and the whole of the descending aorta. There is a blind spot. That section of the ascending aorta towards the aortic arch cannot be seen using a TOE. This blind spot is of no relevance in this Inquiry. As imaging procedures used in the diagnosis of aortic dissection a TOE and a CT scan are seen as complementary to each other.

[22] Mr Baird was transferred to cardiology in Monklands General Hospital for a TOE to be carried out. Dr Pell, a consultant cardiologist at Monklands General Hospital, arrived for duty at 9:00am on Friday morning. He discovered that Mr Baird was

waiting for a TOE to be carried out. Given the importance of dealing with aortic dissection quickly the request that Monklands General Hospital carry out a TOE before Mr Baird was transferred to the Golden Jubilee Hospital surprised Dr Pell. Dr Pell was of the view that it would be preferable for Mr Baird to be transferred immediately to the Golden Jubilee Hospital and for the TOE to be carried out there.

[23] Dr McLaren up to this point had been carrying out his duties as the on call Accident and Emergency Consultant from home. He too was surprised when he came into the Accident and Emergency Department at Monklands General Hospital that morning to discover that Mr Baird had still not been transferred to the Golden Jubilee Hospital.

[24] Dr Pell telephoned the Golden Jubilee Hospital and spoke to Mr Berg, a cardiothoracic surgeon there whom he knew. Mr Berg agreed to Mr Baird's immediate transfer to the Golden Jubilee Hospital.

[25] Before Mr Baird was transferred Dr Pell carried out a Trans Thoracic Echocardiogram (a TTE). This showed Mr Baird had a dilated aortic root and a probable small pericardial effusion. Mr Baird was transferred to the Golden Jubilee Hospital at 11:35am on Friday 26th March 2010.

[26] When Mr Baird arrived and was admitted to the Golden Jubilee Hospital Mr Sutherland arranged for the TOE to be carried out by Dr Tzemos, a consultant cardiologist in the Golden Jubilee Hospital who was at the time being assisted by Dr Andrew McCulloch. Dr McCulloch was then in the fifth year of his specialist registrar training in cardiology and is now a consultant cardiologist in his own right.

[27] Before carrying out the TOE Dr Tzemos and Dr McCulloch, in the presence of Mr Sutherland, reviewed the CT scan taken at Monklands General Hospital. Their notes of

that review state “significant motion artefact affecting aortic root and ascending aorta (not a cardiac gated scan); moderate pericardial effusion; dilated aortic root; no convincing dissection seen” (Golden Jubilee Hospital medical clinical notes, Crown Production 4 page 99).

[28] Dr McCulloch then carried out the TOE under the supervision of Dr Tzemos. A TOE procedure takes between 10 and 20 minutes. The whole TOE procedure is not recorded. Instead, in the course of a TOE selected representative images are stored and then backed up to a server. These selected images are captured as short video clips. No aortic dissection was seen during the TOE.

[29] A TTE carried out at the Golden Jubilee Hospital showed that Mr Baird had a bicuspid aortic valve in that the valve had two leaves instead of the usual three. That deformity can indicate an increased risk of aortic dissection.

[30] An ECG was also carried out at the Golden Jubilee Hospital. That ECG contained findings typical of pericarditis. Pericarditis is a condition of inflammation of the pericardium or sac containing the heart. Pericarditis is usually treated conservatively without any need for surgery. It had also been noted that the pain suffered by Mr Baird was relieved when he bent forward. That is typical of pain due to pericarditis and not typical of pain due to aortic dissection. In the whole circumstances Dr Tzemos arrived at a diagnosis of pericarditis.

[31] On being told of this diagnosis Mr Sutherland decided Mr Baird did not require surgery and steps were taken to return him to Monklands General Hospital. He was returned to Monklands General Hospital at 2:00am on Saturday 27th March 2010.

[32] At 4:00am Mr Baird began to suffer severe bilateral shoulder pain. His condition worsened. Dr Syeed, a consultant in general and respiratory medicine at Monklands

General Hospital instructed that the Golden Jubilee Hospital should be contacted to ensure they were entirely happy with the results of the TOE.

[33] Mr Baird suffered cardiac arrest and died at 12 noon.

[34] The post-mortem examination carried out on Mr Baird discovered no evidence of primary pericarditis and that the cause of death was hemopericardium due to thoracic aortic dissection.

Was Mr Baird suffering from an aortic dissection when he was admitted to the Golden Jubilee Hospital?

[35] The areas of controversy in relation to the aortic dissection suffered by Mr Baird were (a) whether he was suffering from it when he was admitted to the Golden Jubilee or whether it developed later and (b) whether the diagnosis of pericarditis made at the Golden Jubilee was accurate or not. I should say at the outset that credibility was not an issue at this Inquiry. I am entirely satisfied that all the witnesses gave an accurate account as they saw it.

[36] Two possible scenarios emerged from the evidence. The first was that the diagnosis of pericarditis was wrong and that when admitted to Monklands General and later to the Golden Jubilee Mr Baird was suffering from the very early stages of an aortic dissection which later developed into a full blown aortic dissection. This scenario was advanced by Mr Edward Brackenbury, consultant cardiothoracic surgeon, Dr Peter Bloomfield, consultant cardiologist and Dr John Reid, consultant radiologist all called as witnesses by the Crown. The alternative scenario was that the diagnosis of pericarditis was accurate and that the aortic dissection occurred, by coincidence, once Mr Baird had been returned to Monklands General from the Golden Jubilee. According to this

scenario the symptoms exhibited by Mr Baird prior to and during his admission to the Golden Jubilee were not associated with his subsequent aortic dissection. This scenario was advanced by Mr Vapin Zamvar, consultant cardiothoracic surgeon called as an expert by the Board and Mr Fraser Sutherland, Dr Tzemos and Dr McCulloch.

[37] I shall now take some time looking at the evidence of the witnesses in relation to this issue.

Dr McLaren

[38] Dr McLaren has been an Accident and Emergency consultant for 29 years. He was satisfied following the CT scan that Mr Baird was suffering from an aortic dissection. He had never before seen aortic dissection in such a young patient.

Dr McGhee

[39] At the time Dr McGhee had been a consultant radiologist for some five years. His evidence in relation to this matter was as follows. The key finding in the CT scan was the blood outside the aorta. He could tell from the density of the shading of the image that the CT scan showed there was blood in that area rather than some other fluid or tissue. The aorta is the only high pressure blood vessel in that area of the body so, in the absence of trauma, the presumption is that the blood shown outside the aorta on this CT scan had to have come from the aorta. Had he missed out the sentence in his report about having seen a possible dissection flap that would not have changed the clinical scenario. He had thought it was possible that he had located a dissection flap and had stated that in his report. At certain angles on the CT scan the dissection flap looked fairly convincing but he had conceded in his report that the defect shown on the scan

might have been a motion artefact rather than a dissection flap. That however did not affect his overall view that he was looking at an aortic dissection. He had been almost certain that he was looking at a dissection.

[40] In relation to a TOE he stated that a TOE and a CT scan are complementary procedures.

Mr Brackenbury

[41] Mr Edward Brackenbury has been a consultant cardiothoracic surgeon at the Royal Infirmary, Edinburgh since June 1999 and is honorary senior lecturer in cardiothoracic surgery at the University of Edinburgh Medical School. What he said about this matter can be summarised as follows.

[42] The ECG carried out at the Golden Jubilee contained results consistent with pericarditis. However when taken with the sudden onset of severe chest pain the X-ray showing widening of Mr Baird's mediastinum was an indicator of possible aortic dissection. Bleeding from an aortic dissection into the pericardium can mimic pericarditis by causing inflammation of the pericardium. Dr Tzemos and Mr Sutherland had been falsely reassured by the TOE and had been over reliant on it. It was known at that time that Mr Baird had a bicuspid aortic valve and a dilated aortic root. These conditions increase the risk of suffering an aortic dissection. The important clinical finding in the CT scan was the bleeding around the aorta. That is highly abnormal. Leaving aside aortic dissection not many conditions result in haematoma around the aorta. Major deceleration injuries might cause it but not minor trauma. The finding of haematoma around the aorta would have made Mr Brackenbury anxious for

Mr Baird's life. The diagnosis of pericarditis arrived at in the Golden Jubilee does not explain this blood around the aorta.

[43] The TOE did not unequivocally rule out aortic dissection. A CT scan and TOE are complementary. The TOE did not see an aortic dissection. That is not the same as saying it was not there. In all probability when the TOE was carried out Mr Baird's aorta was only just beginning to split and the flap was simply not seen by the TOE.

[44] He pointed out that the post-mortem results show the dissection flap was where Dr McGhee identified a possible dissection flap on the CT scan. Mr Brackenbury described the suggestion that Mr Baird was not suffering from an aortic dissection before the Golden Jubilee returned him to Monklands General as hard to believe.

[45] The explanation Mr Brackenbury favours is that the aortic dissection had just begun when Mr Baird presented at Monklands General and was in its early stages at the time of the TOE at the Golden Jubilee. It developed into a full blown dissection later.

Dr Bloomfield

[46] Dr Peter Bloomfield was a consultant cardiologist at the Royal Infirmary and Western General Hospitals in Edinburgh from 1989 to April 2013. He is an honorary senior lecturer at the University of Edinburgh. His evidence in relation to this issue can be summarised as follows.

[47] The ECG carried out on Mr Baird showed changes compatible with pericarditis. The diagnosis of pericarditis was however a misdiagnosis. It was wrong.

[48] The combination of Mr Baird's dilated aortic root, bicuspid aortic valve and the pericardial effusion shown on the scans raised the suspicion of aortic dissection. The CT scan was highly suspicious but not absolutely diagnostic.

[49] He is experienced in carrying out TOEs and was involved in introducing them to Edinburgh Royal Infirmary. A TOE is sensitive in the sense that if something is seen in a TOE it is there. A TOE might however miss a small tear. The difficulty with a TOE is that it presents a two dimensional picture of a three dimensional structure.

[50] Typical aortic dissection pain is not affected by sitting forward whereas pain due to pericarditis can be relieved by sitting forward. The blood around the aorta shown on the CT scan was a cause for concern. Bleeding into the wall of the aorta can be a precursor of dissection. Bleeding from Mr Baird's aorta could have caused pericarditis as part of the progression of the aortic dissection.

[51] In Dr Bloomfield's opinion Mr Baird was suffering from an aortic dissection which progressed between the time he was seen at the Golden Jubilee and his death.

[52] Dr Bloomfield pointed out that the dissection flap discovered during the post mortem was found where Dr McGhee described seeing a possible dissection flap on the CT scan.

Mr Zamvar

[53] Mr Vipan Zamvar, consultant cardiothoracic surgeon, was called as an expert witness by the Board.

[54] Mr Zamvar is a very experienced surgeon. He has been a consultant in cardiothoracic surgery at the Royal Infirmary of Edinburgh since May 2002. He has published widely. Before giving evidence he had sight of the report prepared by Dr Reid, Consultant Radiologist, for this Inquiry (production No. 3 for the Crown). In his report Dr Reid identifies on the CT scan taken at Monklands General what he describes as the probable lead point of the dissection (at page 17 production No. 3 for the Crown).

This probable lead point is where we find the defect identified by Dr McGhee on the CT scan as a possible dissection flap.

[55] Mr Zamvar's evidence in relation to the issue of when Mr Baird developed an aortic dissection was as follows.

[56] Dr. Reid's reference to a probable lead point of a dissection is not a definite diagnosis. What Dr Reid considers to be the probable lead point of the dissection is in fact motion artefact.

[57] There is significant motion artefact on the CT scan. The possible dissection flap identified by Dr McGhee in that CT scan is motion artefact. It is not a dissection flap. On CT scans a dissection flap is very obvious. In his practice as a consultant cardiothoracic surgeon Mr Zamvar makes decisions based on his own interpretations of CT scans and he reviews and interprets CT scans. He has the experience and knowledge to do that.

[58] The TOE would have picked up a small tear. The TOE unequivocally ruled out the possibility of aortic dissection at that time. The only explanation is that the aortic dissection suffered by Mr Baird developed after the TOE was carried out and was a coincidence.

[59] Mr Zamvar agreed with the finding that the CT scan shows haematoma around the aorta. He agreed blood around the aorta is abnormal. He cannot explain where the blood around Mr Baird's aorta came from.

Dr Tzemos

[60] Dr Tzemos is a very experienced cardiologist. He is currently staff cardiologist/director of research and education at the Cleveland Clinic, Abu Dhabi and

was a consultant cardiologist at the Golden Jubilee from 2009 to 2014. He has also held academic posts and again has published widely. His evidence in relation to this issue can be summarised as follows.

[61] Dr McCulloch had carried out the TOE on Mr Baird at the Golden Jubilee under his supervision. He had examined the CT scan from Monklands General along with Dr McCulloch and Mr Sutherland before the TOE had been carried out. When he did that he was not re-interpreting the CT scan. He was reviewing it to inform himself. During that review he saw a lot of motion artefact on the CT scan.

[62] No dissection was seen during the TOE. During the TOE there was a good view of the aortic root where Dr McGhee had identified a possible dissection flap and no dissection was seen there. Having carried out the TOE he concluded there was no aortic dissection. The pain being suffered by Mr Baird was typical of pericarditis. There was pericardial effusion. The ECG carried out at the Golden Jubilee contained findings consistent with pericarditis. In all the circumstances he arrived at a diagnosis of pericarditis.

[63] Dr Tzemos stated that a TOE scan is about 98% accurate and acknowledged it could miss a very small tear. He also stated that he has reviewed the images from the TOE and there is no aortic dissection to be seen there.

[64] In his evidence Dr Tzemos at first accepted that as the post-mortem had found no evidence of primary pericarditis Mr Baird could not have been suffering from pericarditis at the Golden Jubilee. He however later revised that view on the basis that pericarditis is transitory and his final position was that Mr Baird could have been suffering from pericarditis at the Golden Jubilee.

[65] Dr Tzemos considers that the TOE ruled out aortic dissection. He agrees with Mr Zamvar that Mr Baird developed an aortic dissection after he had been discharged from the Golden Jubilee and that it is a coincidence that Mr Baird died as a result of an aortic dissection. Dr Tzemos is of the view that a small tear in the aorta could not have produced the amount of blood seen around the aorta in the CT scan. He agreed however that blood around the aorta is generally a cause for concern.

Dr McCulloch

[66] Dr Andrew McCulloch is now a consultant cardiologist at Inverclyde Royal Hospital, Greenock. At the time of Mr Baird's admission to the Golden Jubilee he was in his final year of SpR cardiology training. He conducted the TOE under the supervision of Dr Tzemos. Like Dr Tzemos he insisted that he and Dr Tzemos had not reinterpreted the CT scan from Monklands General before carrying out the TOE but had instead reviewed it to inform themselves. He confirmed that it was his view that the TOE did not show an aortic dissection and he endorsed the view of Mr Zamvar that Mr Baird had developed an aortic dissection after his discharge from the Golden Jubilee Hospital.

Mr Sutherland

[67] Mr Fraser Sutherland has held the post of consultant cardiac surgeon at the Golden Jubilee since 2008. He holds academic appointments and in common with all the other medical witnesses has published widely. His evidence in relation to this matter was as follows.

[68] He did not interpret the CT scan from Monklands General. The interpretation of CT scans is for a radiologist. He had relied on the diagnosis of the cardiologists at the Golden Jubilee.

[69] Alone among the medical witnesses he did not consider blood around the aorta in itself to be a matter of particular concern. Had there been no mention of a possible dissection flap in Dr McGhee's report on the CT scan he would have had no concerns at all. He is of the view that blood around the aorta could be the result of minor trauma. He too endorsed the views of Mr Zamvar in relation to the timing of the development of Mr Baird's aortic dissection.

Dr Reid

[70] This brings me to the evidence of the final expert in relation to this discreet point. That expert was Dr John Reid. He was led by the Crown.

[71] Dr John Reid is a consultant radiologist. He prepared a report for this Inquiry (Production No.3 for the Crown). He has held a number of academic posts. He is currently consultant radiologist at Borders General Hospital. He has held the post of consultant radiologist at the Royal Infirmary of Edinburgh. He is past president of the Scottish Radiological Society and was radiology advisor to the chief medical officer for Scotland for six years. He delivered the Honeyman Gillespie Lecture on cardiac imagery in 2006 and the Viscount Crookshank Lecture at the Royal College of Radiologists in London in 2012. He has a particular interest in cardiothoracic imagery.

[72] He reviewed the CT scans from Monklands General Hospital for the purposes of this Inquiry and his report.

[73] In his evidence he dealt with the possible dissection flap identified on the CT scan by Dr McGhee. It will be remembered that Dr McGhee had said at the time that this could be motion artefact and that Mr Zamvar in his evidence said it definitely was motion artefact.

[74] Dr Reid unequivocally stated that the defect shown on the CT scan is not motion artefact and is a dissection flap. His evidence in relation to this matter was as follows. There are two reasons why it can be seen that the defect is not motion artefact. The first is that a CT scan shows a number of consecutive slides rather like a cine film, these slides being taken from different angles. This defect is shown on all the slides no matter what the angle and that would not be expected of a motion artefact. The second reason is this. All the defects on a CT scan caused by the heart beating run in the same direction. The defect shown on this scan is at right angles to the defects caused by motion of the heart. It cannot therefore be motion artefact caused by heartbeat. The other forms of motion artefact can also be ruled out as there is no motion artefact on the diaphragm on the CT scan and no sign of any motion artefact on the bony structures. Motion artefact caused by breathing and movement of the body can therefore also be ruled out. Dr Reid stated that the conclusion arrived at by Dr Tzemos and Dr McCulloch at the Golden Jubilee during their review of the CT scan that there was significant motion artefact affecting the aortic root and ascending aorta was simply wrong.

[75] Dr Reid then explained that when in his report he refers to the “probable lead point of dissection in the aortic root” he is indicating where the dissection probably started. He is not suggesting that there is any doubt over the presence of a dissection flap. It is definitely there.

[76] Dr Reid pointed to the fact the dissection flap shown on the CT scan is where a dissection flap was discovered during the post-mortem. Asked to comment on the likelihood of Mr Baird developing an aortic dissection by coincidence after he was discharged from the Golden Jubilee Dr Reid likened that to being struck by lightning and a meteorite at the same time.

[77] He spent some time in his evidence going through the CT images of Mr Baird's aortic root. *Inter alia* these show that his aortic root was dilated and had an onion bulb like appearance. This, Dr Reid stated, is typical of the condition known as annuloaortic ectasia. With this condition there is a thinning of the middle layer of the wall of the aorta which expands until it eventually forms a dissection or ruptures.

[78] In Dr Reid's view, at the time of the CT scan Mr Baird suffered from annuloaortic ectasia, had a dissection of the aortic root and was starting to bleed into the pericardium and mediastinum. Dr Reid stressed this diagnosis is not an easy one to make and Mr Baird's CT scans are not easy to interpret. Dr Reid stated he is only able to interpret these scans properly because of his many years of experience.

SUBMISSIONS

[79] In relation to this issue of whether Mr Baird was suffering from an aortic dissection before he was discharged from the Golden Jubilee the Procurator Fiscal invited me to accept the evidence of Mr Brackenbury, Dr Bloomfield and Dr Reid. Counsel for the Board on the other hand submitted that Mr Zamvar was a particularly impressive witness with extensive experience and that his position seemed logical. She pointed to inconsistencies in the conclusions drawn by the various witnesses led by the Crown.

DISCUSSION

[80] Having considered all of the evidence in relation to this matter I have reached the conclusion that Mr Baird was suffering from the early stages of an aortic dissection when he was first admitted to Monklands General and later to the Golden Jubilee. I have also reached the conclusion that the primary diagnosis of pericarditis arrived at in the Golden Jubilee Hospital was wrong.

[81] There are several difficulties with the proposition that Mr Baird was not suffering from an aortic dissection when seen at Monklands General and the Golden Jubilee and that it is a coincidence that he later died as a result of that condition. These difficulties are:-

a) Aortic dissection is not common. It is even less common in someone of Mr Baird's age. In that context the suggestion that the suspicions of aortic dissection that led to Mr Baird's admission to the Golden Jubilee, his subsequent death from the effects of an aortic dissection, and the post-mortem results showing an aortic dissection in the very place where the CT scan carried out at Monklands General Hospital identified a possible dissection flap is all nothing more than coincidence is to my mind inherently highly improbable.

b) The CT scan showed blood around the ascending aorta. With one exception the evidence of the medical witnesses in this Inquiry was that this is a highly concerning finding. Mr Zamvar acknowledged that the diagnosis of pericarditis and the suggestion that Mr Baird's death from an

aortic dissection was a coincidence leave the presence of this blood around the aorta entirely unexplained.

c) The proposition that the aortic dissection suffered by Mr Baird was a coincidence and not in way connected with the symptoms he was exhibiting earlier was grounded in two basic propositions. These are to be found in Mr Zamvar's report and were outlined in his evidence. They are (i) that the TOE unequivocally ruled out the possibility of aortic dissection and (ii) that the possible dissection flap shown on the CT scan was in fact motion artefact. I am entirely satisfied on the totality of the evidence that both of these propositions are wrong. I shall explain why.

The TOE procedure is not 100% accurate. Mr Zamvar acknowledged that. All the witnesses who spoke to this point agreed on this. Dr Bloomfield, who is very experienced in TOEs and was instrumental in introducing them to Edinburgh Royal Infirmary, explained that the difficulty with them is that they produce a two dimensional image in respect of a three dimensional object and can miss very small tears. The quality of a TOE is operator dependant. Dr Tzemos gave the figure of 98% accuracy when speaking of a TOE and acknowledged that a TOE might miss a very small tear. I reserve my position as to whether 98% is an accurate assessment of the accuracy of a TOE but it is sufficient to confirm that there is a small margin of error in a TOE. Pulling all of this together, to say that the TOE unequivocally ruled out the possibility of aortic dissection is overstating

the position. There remains the possibility that the aortic dissection was there, very small and simply not seen. That leaves the defect on the CT scan, the black line which was either a dissection flap or motion artefact. On this point I found the evidence of Dr Reid extremely helpful and convincing. He is a very experienced consultant radiologist. He gave cogent and convincing reasons for excluding the possibility of the defect shown on the CT scan being motion artefact. Added to this there is also the point that this defect occurs where the post mortem revealed there was a dissection flap at the time of death. That strikes me, as it struck a number of the witnesses, as highly significant. I accept Dr Reid's evidence. I am satisfied on the whole evidence that the line shown on this CT scan is a dissection flap and not motion artefact.

[82] These difficulties taken cumulatively lead me to reject the proposition that Mr Baird was not suffering from an aortic dissection when he was first seen at Monklands General and later seen at the Golden Jubilee.

[83] Dr Reid in his evidence gave a detailed description of the pathology of the aortic dissection suffered by Mr Baird. In particular he considered it a result of annuloaortic ectasia which he identified on the CT scan. Dr Reid's reasoning in relation to this was cogent. But this possibility was not explored with other witnesses and so they were not given the opportunity to comment on it. In those circumstances I stop short of finding that annuloaortic ectasia led to Mr Baird's aortic dissection.

[84] I am however satisfied that at the time of his presentation at Monklands General and then at the Golden Jubilee Mr Baird was suffering from the initial stages of an aortic dissection which developed into a full-blown aortic dissection after he had been discharged from the Golden Jubilee and returned to Monklands General.

[85] I am also satisfied that any pericarditis suffered by Mr Baird was secondary to the aortic dissection and resulted from irritation to the pericardium caused by leaking of blood. This was the explanation put forward by Dr Bloomfield and Mr Brackenbury and explains why there was no evidence of primary pericarditis found at the post-mortem.

SECTION 6(1)(c) – THE REASONABLE PRECAUTIONS, IF ANY, WHEREBY THE DEATH AND ANY ACCIDENT RESULTING IN THE DEATH MIGHT HAVE BEEN AVOIDED.

[86] Having decided that Mr Baird was suffering from the early stages of an aortic dissection when he was admitted to the Golden Jubilee this brings me to consideration of Section 6(1)(c). I shall begin by considering whether it is appropriate for me to make any finding at all under this heading.

The scope of section 6(1)(c) in a medical fatal Accident Inquiry.

[87] The Procurator Fiscal reminded me that a Fatal Accident Inquiry is not a fault finding exercise and it is not the proper forum for determining civil liability. She presented me with authorities in support of the proposition that it is proper to apply hindsight when identifying reasonable precautions and that foreseeability of a risk is not

a consideration. She submitted that the test for a finding under Section 6(1)(c) is that of a lively possibility that the death might have been avoided and also provided me with authorities in support of the proposition that the approach in relation to a Fatal Accident Inquiry involving medical practitioners is no different to that appropriate in other inquiries.

[88] Counsel for the Board on the other hand submitted that in a medical Fatal Accident Inquiry lawyers should be slow to comment on medical practice. She submitted a precaution can only be said to be reasonable in the context of a medical Fatal Accident Inquiry if it is one which no doctor of ordinary skill in the relevant field of practice would have failed to take if acting with reasonable care. In short the decision whether a precaution is reasonable or not in the context of a medical Fatal Accident Inquiry involves the application of the well-known test found in *Hunter v Hanley* 1955 SC 200.

[89] In support of this proposition counsel relied on a determination of then Sheriff Stephen (now Sheriff Principal Stephen QC) in the *Determination into the death of Lynsey Miles* issued 27th February 2004 and that of Sheriff Peter Braid *Determination into the death of Marion Bellfield* issued 28th April 2011.

[90] In my view the starting point is that it is well established that a Fatal Accident Inquiry is not a fault finding exercise. It is not the proper forum for determining civil liability. There is no record of written pleadings. There is no claim for damages. One very important purpose of a Fatal Accident Inquiry is to try to make the deceased's family aware of the facts and circumstances surrounding the death. Another very important function of a Fatal Accident Inquiry is to inform the future actions of interested parties so that a death in similar circumstances might be avoided in future.

And so, to achieve this, the benefit of hindsight has a significant part to play. It follows in my view that reasonable foreseeability has no part to play in this exercise and I agree with those decisions which have taken that approach. (See for example Sheriff Fiona Reith QC's determination in the *Inquiry into the death of Sharmain Weir*, Glasgow 23 January 2003).

[91] As to whether the death might have been avoided by the application of a reasonable precaution it is I believe settled that this involves more than a theoretical possibility. As a test it has to have some substance. Sheriff Kearney described the test as that of "a lively possibility" (*Determination into the death of James McAlpine* on 17th January 1986). I cannot put it any better than that.

[92] In this context I see no reason in principle to import and adapt the restrictions imposed by *Hunter v Hanley* to a medical Fatal Accident Inquiry. The purpose of a medical Fatal Accident Inquiry is the same as that of any other Fatal Accident Inquiry. A decision as to whether a precaution is reasonable does not involve an exercise of foreseeability. It does not involve any consideration of negligence. It is a decision arrived at with the benefit of hindsight. There is no implication in such a finding that a failure to take the precaution is negligent or unreasonable. *Hunter v Hanley* is all about negligence. To apply the considerations of a *Hunter v Hanley* test would needlessly restrict the public utility of a Fatal Accident Inquiry. I agree with the comments made by Sheriff Liddle in *Determination into the death of Kieran Nichol* on 3rd June 2010, and Sheriff Reith (*supra*) on this point. To my mind the term "reasonable precaution" in the context of a Fatal Accident Inquiry is a term which should be given its ordinary natural meaning and that whether the Inquiry is a non-medical one or a medical one. The

decision as to whether there was any reasonable precaution whereby the death might have been avoided involves considering all the evidence in the round, including of course the expert medical evidence giving that expert medical evidence appropriate weight.

[93] It is perhaps worth pointing out that we are not dealing in this Inquiry with a situation where there are differences of professional opinion as to how a particular medical condition might be treated. What we have here is, in Dr Bloomfield's words, a misdiagnosis in the course of which the presence of the early stages of an aortic dissection was missed at the Golden Jubilee. In my view it is entirely appropriate to consider in a Fatal Accident Inquiry, with the benefit of hindsight, whether there was any reasonable precaution (giving that expression its ordinary natural meaning) which could have been taken to avoid that situation.

[94] I will now turn to look at the main sources of evidence in relation to the point.

Mr Brackenbury

[95] In relation to this point Mr Brackenbury said the following.

[96] As a clinician he can give a reasonable interpretation of a CT scan but a consultant radiologist could trump his views. Dual reporting is a good thing. When dealing with a possible aortic dissection, if there is any doubt in relation to a CT scan he believes the normal practice is to seek the advice of a radiologist as there is so much at stake. Aortic dissection is a diagnosis that cardiothoracic surgeons do not want to miss. The big question here was how did the blood get around the aorta. As a clinician he would want to know how that blood got there.

[97] A CT scan is the best method of identifying aortic dissection. A TOE has its place but it is more operator dependent. Where there is a clear obvious dissection, what is referred to as a barn door dissection, shown on a CT scan there is no point in proceeding to a TOE. The TOE and CT scans are complementary. In this case there was diagnostic uncertainty after the CT scan and it was entirely appropriate to proceed to other imaging such as a TOE. Clinicians however have to be aware of the limitations of a TOE. It is helpful but it does not give a 100% cast iron diagnosis.

[98] After the TOE had been carried out he, Mr Brackenbury, would not have taken the patient to the operating theatre on the information then available. But, given the number of concerning factors in this case including the CT scan and the radiologist's report, the patient's presentation, and the chest X-ray showing widening of the mediastinum, he would have sought the advice of an expert radiologist in relation to the CT scan. He has done that in the past. It is appropriate to rely on the expertise of consultant radiologists.

[99] This was a difficult case. The concerns could not simply be put to one side just because the TOE did not show a dissection. Most of the consultant cardiothoracic surgeons Mr Brackenbury knows would, in the circumstances of this case, have discussed the CT scan with a consultant radiologist before the patient was sent back to the referring hospital.

Dr Bloomfield

[100] Dr Bloomfield gave the following evidence of relevance to this matter.

[101] He too spoke to how difficult a case this was. He had shown the TOE and TTE scans to a group of colleagues made up of three consultant cardiologists, two specialist

registrars training in cardiology and four echocardiography technicians. None of them had identified features which clearly diagnosed aortic dissection and they were all horrified to hear that the patient had died of an aortic dissection the following day.

[102] People with a dilated aortic root are at risk of developing dissection as are those with a bicuspid aortic valve. The problem with the type of CT scan done in Monklands General is motion artefact. The CT scan at Monklands General was highly suspicious. It was not however absolutely diagnostic. In his view after the TOE had been carried out a consultant radiologist, expert in looking at CT scans of the aorta, should have become involved.

[103] Management of a patient in this situation is a joint decision between the cardiologist and the surgeon. The bleeding around the aorta shown on the CT scan had to come from somewhere and the likelihood was it was coming from the aorta. Dr Bloomfield stressed he has no criticism of the surgeon for not operating after he had received the result of the TOE however his own practice as a cardiologist is to obtain the opinion of a radiologist when there is a suggestion of something wrong. As a cardiologist he is not an expert at looking at CT scans. He illustrated this point with the example that radiologists can tell from the density of the shade of a substance shown on a CT scan whether it is blood or not. He, as a non-expert in these matters, cannot.

Dr Tzemos

[104] Dr McCulloch, Dr Tzemos and Mr Sutherland all insisted that when they examined the CT scan and read the consultant radiologist's report from Monklands General before carrying out the TOE scan they were not embarking on a reinterpretation of the CT scan. They described their process as one of review. Dr McCulloch and Mr

Sutherland readily accepted that they are not experts at reviewing CT scans. Dr Tzemos was perhaps more hesitant in conceding that.

[105] Dr Tzemos stated that when he looked at the CT scan as part of his review he observed a lot of motion artefact. While he accepted that the consultant radiologist from Monklands General in his report accompanying the CT scan had said that there was blood around the ascending aorta Dr Tzemos stated that what he saw was a lot of fluid but he did not know whether it was blood or not. Dr Tzemos stated that after 5:00pm gated scans were probably not available in the Golden Jubilee Hospital as the taking of a CT scan requires an advanced level of expertise and not all radiologists can carry out a gated CT scan. Dr Tzemos was firmly of the view that the CT scan did not show a dissection.

Mr Sutherland

[106] Mr Sutherland stated that as he had a report on the CT scan from Dr McGhee there was no need for him to seek the advice of another radiologist. He stated that a gated CT scan could not have been carried out in the Golden Jubilee Hospital after 5:00pm. He stated that he had asked the cardiologist at the Golden Jubilee Hospital to undertake a TOE as, while the CT scan had raised the possibility of aortic dissection, there was uncertainty. He was present with Dr McCulloch and Dr Tzemos when the review of the CT scan was undertaken and while the TOE was performed. He believes that the CT scan contained significant motion artefact.

[107] Mr Sutherland stated that had Dr McGhee said that he was almost certain there was a dissection the whole direction of travel would have been different. He explained that a TOE and a CT scan have different strengths and weaknesses. He stated that a

TOE can be more accurate than a CT scan and that he based his ultimate decision on the cardiologists' conclusion that there was no dissection.

Mr Zamvar

[108] Mr Zamvar, as I have indicated, stated categorically that what might be seen as a dissection flap on the CT scan is in fact motion artefact. He stressed that Mr Sutherland could not be criticised in any way. He pointed out the final decision as to whether to operate or not is made by the surgeon.

[109] As I have said Mr Zamvar also pointed out that at times he makes his own decisions based on his own interpretations of CT scans and said a dissection flap is something that is very obvious on a CT scan. He expressed the view that a TOE would have picked up a small tear. He said he has the experience and knowledge required to interpret CT scans.

[110] Mr Zamvar stated that he would not have sought another opinion in this case and in particular would not have discussed the matter with a consultant radiologist.

Dr Reid

[111] Dr Reid gave the following evidence of relevance to this issue.

[112] Dr Reid considers that this was a major life or death decision that had to be got right. As I have said, he explained that the defect shown on the CT scan is not motion artefact and is in fact a dissection flap. He set out why he could say that. In his evidence he also explained the mechanism by which a consultant radiologist can tell what a fluid on a scan is and in particular whether it is blood or not. That is done using

the Hounsfield Scale. That measures the density of the image shown on the CT scan. Bone and every type of soft tissue has a set Hounsfield number.

[113] He stated that the Monklands General CT scan was of good technical quality for all it was not a gated scan. He explained that a gated scan is a complicated process and some radiographers do not know how to do it. It is therefore custom and practice to perform non gated scans.

[114] Dr Reid stated that at the Golden Jubilee the CT scan was reviewed by a consultant cardiothoracic surgeon, a junior cardiologist and a consultant cardiologist none of whom were qualified as radiologists. He said that the dissection flap that can be seen on the Monklands General Hospital CT scan is not a classic dissection flap. He stated that someone with no qualifications would be able to make the diagnosis of a dissection flap in a standard barn door dissection case as it is obvious. He stressed that this particular case was however not an easy one and the diagnosis from the CT scan that there is a tear in the area of the aortic root was not an easy one to make. He expressed the view that it took radiological experience to view this CT scan properly.

[115] Dr Reid agreed that you cannot carry out heart surgery lightly and in Dr Reid's view no surgeon would have decided to operate only on the evidence of the CT scan and the TOE. He however believes there was overreliance on the TOE and a highly suspicious CT scan appears to have been downgraded once the TOE had been carried out. He expressed the view that either Mr Sutherland or Dr Tzemos should have consulted a radiologist experienced in CT scans of the aorta to comment on the CT scan or, if such a person was not available, they should have asked for a gated scan to be carried out as that would have satisfied them that the defect shown on the Monklands General CT scan was not motion artefact.

[116] In short, in view of the potential gravity of the outcome of the diagnostic discordance between the CT scan findings and the TOE Dr Reid believes an opinion should have been sought from a radiologist experienced in cardiothoracic scans. That is a radiologist who, as the main part of his job, deals with the heart and chest. Dr Reid stated that every hospital has such a consultant radiologist just as every hospital has, in the field of orthopaedic surgery, a knee man who specialises in knees. Dr Reid considers that in this case insufficient weight was given by non-radiologists to significant CT findings.

[117] Dr Reid also explained that radiologists use the expressions “in keeping with” and “consistent with” as a matter of standard radiological terminology. So a radiologist would say that there is a five centimetre mass on the right upper lobe which is consistent with a lung cancer when that radiologist knows it is lung cancer. He described this as part of the semantics of radiology and how radiologists describe things.

[118] Dr Reid illustrated his evidence by referring to the review of the Monklands General CT scan at the Golden Jubilee Hospital by Mr Sutherland, Dr Tzemos and Dr McCulloch. It will be remembered that during that review it was noted that “there was significant motion artefact affecting the aortic root and ascending aorta”. That, Dr Reid said, is unequivocally wrong. There is no motion artefact at all in the ascending aorta. This in Dr Reid’s view reflects the difficulty Mr Sutherland, Dr Tzemos and Dr McCulloch had in understanding the concept of motion artefact.

[119] Dr Reid acknowledged that Dr McGhee, the radiologist who reported on the CT scan at Monklands, had left open the possibility of the defect shown on the scan being motion artefact. He pointed out that Dr McGhee at the time had only five years’

experience and Dr Reid was at pains to point out that he was only able to interpret this scan after decades of looking at the thoracic aorta on CT scans. He also pointed out that it was not a radiologist who wrote after reviewing the CT scan taken at Monklands General Hospital “no convincing dissection seen” and that it was a cardiologist at the Golden Jubilee Hospital who had made that assessment.

SUBMISSIONS

[120] The Procurator Fiscal submitted that I should make the following findings:-

- a) That it would have been a reasonable precaution for Mr Sutherland to seek experienced consultant radiology opinion on the CT scan performed at Monklands General Hospital.
- b) That it would have been a reasonable precaution for Mr Fraser Sutherland to instruct further imaging.
- c) That it would have been a reasonable precaution for Mr Baird to have been kept at the Golden Jubilee Hospital for further observations.

[121] In relation to the possibility of Mr Baird being kept at the Golden Jubilee Hospital for further observation the Procurator Fiscal relied on evidence from Dr Tzemos that Mr Baird could have remained under observation there and evidence given by Dr Bloomfield that Mr Baird’s best chance was to be kept in the Golden Jubilee Hospital where there was a possibility of surgery. She also relied on a chapter of Mr Brackenbury’s evidence where he expressed the view that the decision to return Mr Baird to Monklands General without the further consultation or investigation he suggested, was ill-advised.

[122] In dealing with this counsel for the Board's primary position was the one that I have already mentioned namely that in a medical Fatal Accident Inquiry a precaution is only reasonable if it is one that no doctor (in this case a consultant cardiac surgeon) of ordinary skill would fail to take if acting with ordinary care. That, for the reasons I have stated, is a submission I reject.

[123] Counsel however also submitted that in any event, even if expert radiological opinion had been sought it is not clear what advice would have been given. She also pointed to the evidence that a gated CT scan could not be carried out at the Golden Jubilee after 5:00pm. In relation to whether Mr Baird might have been kept at the Golden Jubilee for observation counsel pointed to evidence from Mr Sutherland and Dr Bloomfield indicating that it might not have been possible for Mr Baird to remain there for observation as there are no facilities for that at the Golden Jubilee.

DISCUSSION OF THIS ISSUE

[124] One feature of the evidence was that Mr Sutherland, Dr Tzemos and Dr McCulloch all insisted that when they received the CT scan and radiologist's report from Monklands General Hospital they reviewed the CT scan and did not reinterpret it. This strikes me in context as a very fine distinction. Viewed objectively, whatever their intention was, it seems to me that they did reinterpret the scan. Remember that Dr McGhee's report stated "there is abnormal soft tissue density around the ascending aorta and aortic arch, consistent with haematoma. This extends along the pulmonary arteries and there is also a small pericardial effusion. No evidence of active bleeding. There is a possible small dissection flap arising from the posterior surface of the aortic root at the level of the aortic flap (root). It could however be motion artefact..." This

became, on the review at the Golden Jubilee Hospital: "CT pictures from MDGH reviewed. Significant motion artefact affecting aortic root and ascending aorta.... no convincing dissection seen". It is difficult to see this as anything other than a reinterpretation.

[125] Remember that Dr Reid explained how a radiologist can tell if what is seen on a CT scan is blood. Dr Tzemos in his evidence, while acknowledging that the consultant radiologist, Dr McGhee, had reported that there was blood around the ascending aorta, stated that he did not know if it was blood or not. He said what he had seen was a lot of fluid and he based his diagnosis on the TOE. That is instructive.

[126] Remember also that Mr Zamvar, a highly experienced cardiothoracic surgeon, stated with certainty in the course of his evidence that the defect shown on the aorta in the CT scan is motion artefact. Dr Reid explained clearly and to my satisfaction why it is not. That again is instructive.

[127] Viewing the evidence as a whole it seems to me that once the TOE had been carried out the suspicions raised by the CT scan were put to one side seemingly without further thought. The way forward was dictated entirely by the fact that nothing had been seen in the TOE.

[128] All the medical witnesses agreed with Mr Sutherland's decision to proceed to further imaging after Mr Baird had been admitted to the Golden Jubilee.

[129] There was no suggestion that Mr Sutherland should have proceeded to surgery once he had obtained the result of the TOE. Quite the reverse. All the medical witnesses agreed with his decision not to operate at that point. The difficulty is that after the TOE had been carried out Mr Sutherland and Dr Tzemos were still left with the CT scan and all it contained. It was still there.

[130] Dr Reid and the other medical witnesses all agreed that this was a very difficult case. I am satisfied on the evidence, given the catastrophic consequences of getting a decision in relation to aortic dissection wrong, when faced with on the one hand this suspicious CT scan, Mr Baird's presentation and the widening of his mediastinum and on the other hand the TOE that did not reveal a dissection, many consultant cardiac surgeons and cardiologists would have sought the opinion of a consultant radiologist experienced in the interpretation of CT scans of the aorta.

[131] I am in no doubt, having heard Dr Reid give evidence, that had Mr Sutherland had the benefit of consulting a radiologist of Dr Reid's experience in relation to the CT scan once he had received the result of the TOE, Mr Baird would not simply have been returned to Monklands General with a diagnosis of pericarditis.

[132] In the whole circumstances I am satisfied that in terms of Section 6(1)(c) a reasonable precaution whereby the death and the accident resulting in the death might have been avoided was for Mr Sutherland to seek suitably experienced consultant radiology opinion on the Monklands General Hospital CT scan.

[133] Mr Sutherland stated in his evidence that had Dr McGhee as a consultant radiologist said he was almost certain that he had seen an aortic dissection on the CT scan then the direction of travel in Mr Baird's case would have been different. It seems to me therefore, in the context of the clear unequivocal evidence of Dr Reid, that I can safely take it there is a lively possibility that the direction of travel would again have been different had Mr Sutherland sought the opinion of a suitably experienced consultant radiologist on the Monklands General CT scan after the TOE had been carried out. Had that been done there was at the very least a lively possibility that the true situation would have been identified namely that Mr Baird was in the early stages

of an aortic dissection. It is a small step from there to say that had that true situation been identified the death might have been avoided.

REMAINING ISSUES

[134] The Procurator Fiscal invited me to make further findings under section 6(1)(c). These were that it would have been a reasonable precaution for Mr Sutherland to instruct further imaging and for Mr Baird to have been kept at the Golden Jubilee for observation.

[135] In the first place the evidence generally was that a gated CT scan could not be done after 5pm or at weekends at the Golden Jubilee and such evidence as there was in relation to whether Mr Baird could have been kept for observation at the Golden Jubilee was contradictory and vague.

[136] Leaving that aside entirely it seems to me in any event that the steps which might have been taken once a radiologist had been consulted would have been entirely a matter for the professional judgment of the consultant cardiac surgeon working along with the consultant radiologist and the consultant cardiologists. The important point is that the direction of travel (to use Mr Sutherland's expression) would have been set along a different course. Whether that course would have involved a gated scan or a non-gated scan, whether Mr Baird would have been kept at the Golden Jubilee Hospital for further observations or whether some other course of action entirely might have been followed would all have been matters of professional judgment taken within the constraints of what in reality was available but also taken on the basis that Mr Baird was suffering from the early stages of an aortic dissection and not pericarditis. I therefore

have not made those further findings requested by the Procurator Fiscal under this head.

[137] The Procurator Fiscal also asked me to make a finding under Section 6(1)(e) that a discharge note from Mr Sutherland should have accompanied Mr Baird on his return to Monklands General Hospital. It seems to me that a discharge note along these lines would not have added anything. The die was cast once Mr Baird was returned to Monklands General Hospital with a diagnosis of pericarditis. The diagnosis of aortic dissection is such a time sensitive matter that a discharge note from Mr Sutherland giving the diagnosis of pericarditis and suggesting further follow up would have had no impact on the eventual outcome.

[138] I am grateful to the Procurator Fiscal and to counsel for the Board for the focussed and professional way in which this Inquiry was conducted.