Coroners Act, 1996
[Section 26(1)]

Western *Australia*

RECORD OF INVESTIGATION INTO DEATH

Inquest Reg. No: 37/13

I, Felicity Kate Zempilas, Coroner, having investigated the death of ***Henry Edwin KERR*** *, by holding an Inquest at Esperance between 11 and 13 September 2013, find the deceased was* ***86*** *years of age and that death occurred on* ***7 September 2011*** *at* ***Esperance District Hospital, Esperance*** *as a result of* ***Acute Myocardial Ischaemia in an Elderly Man with Valvular and Ischaemic Heart Disease following Recent Operative Surgery.***

Counsel Appearing :

Sergeant L Housiaux assisting the Coroner
Mr J Johnson (Julian Johnson Lawyers) appearing on behalf of the family
Ms S Teoh (State Solicitor's Office) appearing on behalf of the Esperance District Hospital and the WA Country Health Service, Goldfields Region and Registered Nurse Julie Hastie
Mr G Bourhill (Tottle Partners) appearing on behalf of the MDA National for Dr Walter Byrne, Professor Anthony House and Dr Richard Clingen

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INTRODUCTION

Henry Edwin Kerr ("the deceased") was married and lived at 4 Valentine Way, Esperance with his wife, who has been diagnosed with Alzheimer's disease. The deceased and his wife were assisted in their day to day care by their daughter Pamela Kerr ("Ms Kerr") but the deceased was still physically active and mentally alert.

DECEASED'S MEDICAL BACKGROUND

The deceased had a medical history of hypertension, valvular heart disease (diagnosed in 1998), ischaemic heart disease (evident in February 2011), atrial fibrillation ("AF", of long standing). The deceased had been a social smoker for 60 years, ceasing about 15 years earlier, and a heavy drinker until about 5 years earlier.

The deceased was also quite deaf and required hearing aids in both ears.

On 26 October 2010 the deceased, in the company of his daughter Ms Kerr went to see Dr John Spencer who was the deceased's general practitioner. The deceased complained of feeling unwell with no specific symptoms.

He said he was feeling exhausted at times and was experiencing upper chest pain that tended to come on late in the day and only at rest but not on exertion.

Dr Spencer performed a series of tests including blood tests, x-rays and an ECG.

The chest x-ray showed mild changes of chronic obstructive pulmonary disease (emphysema). The ECG showed AF and blood test results were within the normal range.

Dr Spencer also wrote a referral for the deceased to obtain a halter monitor to gather information in relation to the deceased's AF.

On 31 January 2011 the deceased had a preoperative appointment with Dr Richard Clingen, GP Anaesthetist, in relation to surgery for eye cataracts.

During the consultation Dr Clingen suggested further investigations in relation to the AF and, following that, a heart monitor was obtained and the deceased wore the heart monitor from 28 March 2011 until 4 April 2011. Nothing of significance was revealed during that time.

On 2 February 2011 the deceased was admitted to Esperance District Hospital ("EDH") for surgery to remove a left eye cataract by Dr Turner, Opthalmologist. The anaesthetic was administered by Dr Clingen, the procedure went well and the deceased was discharged the same day.

On 3 May 2011 the deceased was rushed to EDH suffering severe groin pain which had worsened during the previous 12 hours. While waiting to be seen by a doctor, he collapsed in the waiting room.

On examination, there was a painful lump in the groin and the deceased had been vomiting. Dr Toby Pearn established the deceased was suffering from bilateral inguinal hernias and that the extent of the herniation on the right side was the cause of the severe pain.

Dr Pearn consulted with Professor Anthony House, General Surgeon, who gave advice to Dr Pearn and emergency treatment was given for

the painful right inguinal hernia. This consisted of morphine for pain relief and manual compression reduction of the hernia.

This treatment was successful. The deceased was taken to a ward for observation and on 4 May 2011 the deceased was discharged.

Dr Pearn also gave a referral for the deceased to see Professor House for consideration of surgery to repair the bilateral inguinal hernias as the emergency treatment was only a temporary measure. Because the right sided hernia had likely become strangulated or was in the process of becoming so, causing the severe pain, there was a strong possibility it would become strangulated again. Strangulated hernias are a potentially life threatening condition and require surgical repair, preferably before the strangulation occurs.

RIGHT-SIDED INGUINAL HERNIA REPAIR – JUNE 2011

On 17 May 2011 the deceased, with Ms Kerr, went to see Professor House who regularly conducts surgical procedures in Esperance and has rooms there.

Professor House examined the deceased and observed there was no pain, but there were two large hernias left and right side and Professor House felt they were reducible with surgery.

The deceased was placed on Professor House's waiting list for surgical repair of the right hernia first.

The nature of the procedure, along with its risks, was discussed with the deceased in the company of his daughter because the operation needed to be done under general anaesthesia.

Professor House explained the operation would be painful and there would be a need for post-operative analgesics. He also explained that there were risks such as a possibility of infection, recurrence of the hernia, and a potential for death. He explained this in the terms he usually used when explaining such surgery to patients.

The deceased decided he wanted to go ahead with the procedure and it was agreed that Professor House would repair the right side only initially, as the post-operative recovery period would be much longer and more painful if both hernias were repaired at the same time.

Because the deceased had responsibilities in caring for his wife, as well as his pets, he was pleased the surgery could be carried out in Esperance and it was not raised by him or Ms Kerr whether the surgery needed to be done elsewhere. Professor House had the impression it was important the surgery be done in Esperance so the deceased did not have to travel too far away from his home, so did not explore with him any alternatives.

On 30 May 2011 the deceased had an appointment with Dr Spencer (who was also the deceased's GP) in relation to the anaesthetic to be administered during the surgery to repair his right hernia.

On the same day, the deceased also attended the Esperance District Hospital pre-admission clinic and was seen by Registered Nurse Julie Hastie.

On 1 June 2011 the deceased was admitted to Esperance District Hospital for the surgery to repair his right inguinal hernia.

According to the medical file, the surgery was performed by Professor House and a general anaesthetic was given by Dr Spencer. The surgery went well and without complications and the deceased was admitted to a ward shortly afterwards.

Normally a patient who has this type of surgical procedure would be discharged later that evening or the following day but the discharge was delayed in order for the deceased to recover enough to cope better at home when eventually discharged.

Records show that several hours after his return to the ward the deceased complained of left-sided chest pain and was given Glyceryl Trinitrate ("GTN") spray by the nurse. A doctor at EDH, Dr McIntyre, saw the deceased 5 minutes later and noted the pain had resolved and queried in the progress notes whether it was angina.

At 2100 hrs the nurses recorded his blood pressure ("BP") as 71/56 which improved 10 minutes later to 105/54. An ECG was ordered which showed the presence of AF and the automated report noted "*probable anteroseptal infarct age indeterm.*"

According to the ECG there were small Q waves in leads V1 and V2 that would suggest this, however, the tracing shows no significant changes from the ECG done during the recent May admission. No blood tests were done at that time.

Dr McIntyre recorded the description of the pain and that Mr Kerr "*has had episodes before – last one a few months ago. Resolves spontaneously.*" He made a plan for a repeat ECG the following day.

The deceased had no further chest pain overnight and was declining pain relief.

The next day, 2 June 2011, the deceased was seen by Professor House who noted that the deceased was well and noted "*Home when home circumstances can manage.*"

That afternoon, the deceased developed more chest pain which resolved again with GTN spray. Another ECG showed no new changes.

The medical notes indicate he developed more chest pain on 3 June 2011 but there seems to have been no intervention other than further GTN spray, which again resolved the pain, and another ECG which appears similar to the others.

According to the medical file blood was taken for Troponin estimation on 4 June 2011 at 4.40pm but the sample was not received by the laboratory until 6 June 2011 and was, therefore, considered unsuitable for testing. Such a test would have indicated whether there had been a recent infarct.

The deceased had a further incidence of chest pain on the evening of 4 June 2011 which again resolved with GTN spray. The ECG again looked similar to the others. He was discharged home on 6 June 2011 with no further incidence of chest pain. He was prescribed Cartia which is a low dose aspirin medication for thrombosis prevention. Ms Kerr was of the belief this was prescribed to help the deceased with his "*heart problems*".

The deceased was told to return to hospital if there was any more chest pain but to otherwise attend a follow-up appointment with his GP.

On 10 June 2011 the deceased went to see his GP, Dr Spencer. Dr Spencer noted that the deceased was coping well and healing well. Dr Spencer also noted and that while the deceased was in the EDH he "*had some chest pain post-op that was relieved by anginine*" and he had been "*discharged on aspirin*". He noted the deceased's blood pressure was 118/55. There is no documented plan to investigate the chest pain any further in the records.

Dr Spencer reviewed the deceased again on 5 July 2011 and cleaned out his ears.

Ms Kerr said she had not been aware of the deceased suffering any chest pain prior to the June surgery (even though the deceased must have told Dr McIntyre he had suffered it previously) and she was of the belief the chest pain had resolved since the last episode on 4 June 2011 with no further incidence.

On 11 July 2011 the deceased attended a pre-admission appointment with RN Hastie. This appointment was in relation to a cataract operation on his right eye.

On 14 July 2011 the deceased went back to see Professor House for review of the hernia surgery and to discuss a second procedure to repair the left side inguinal hernia.

Professor House examined the deceased and noted that his wound was healing well and the right inguinal hernia was now controlled but the left hernia was unchanged.

According to Professor House he again discussed the surgery with the deceased in the presence of Ms Kerr.

They talked about the repair to the deceased's left inguinal hernia and according to Professor House, as he did with the previous hernia procedure, he again explained in his usual manner that the operation would be painful and that there would be a requirement for post-operative analgesics, there was a possibility of infection, recurrence of the hernia, and a potential for death. Professor House noted the deceased had declined pain relief after his first hernia repair and took the view the deceased was a fairly "stoic" individual because of this.

The deceased agreed to go ahead with the procedure and was again keen to have the operation in Esperance. The deceased was added to Professor House's list for surgery on 6 September 2011.

Neither Professor House nor Ms Kerr could recall a specific discussion about the chest pain the deceased had post-operatively in June.

On 19 July 2011 the deceased was admitted to EDH for right sided cataract surgery by Dr David Offerman, Opthalmologist. The anaesthetic was administered by Dr Falkner. It appears that the surgery went well as he was discharged home that day.

LEFT-SIDED INGUINAL HERNIA REPAIR
6 SEPTEMBER 2011

On 30 August 2011 the deceased attended a pre-operative appointment with Dr Walter Byrne, GP Anaesthetist, who would be administering the anaesthetic during the deceased's left-sided inguinal hernia repair.

The deceased attended this appointment with his other daughter, Sue Cutten. Dr Byrne went through a checklist of information and questions with the deceased and noted the responses on the Pre-

Anaesthetic Check Form. Blood tests were ordered which indicated the deceased had a normal full blood count, normal renal function, normal liver function and normal calcium and magnesium levels. His blood pressure was 120/80.

Dr Byrne noted the pre-existing AF and the deceased's medications. He ordered a further ECG which he received the next day and showed the same AF as appeared on the May and June ECG's.

Dr Byrne said he was not told of the chest pain which had occurred post-operatively in June by either the deceased or Ms Cutten at this appointment and was not aware of it as he did not have access at that appointment to other notes, such as the hospital notes or GP file. Dr Byrne did review the anaesthetic notes on the deceased's hospital file prior to surgery, to familiarise himself with the anaesthetics that had been used previously particularly in light of the AF, but did not look at the progress notes on the file.

Dr Byrne said if he had been aware of the incidents of chest pain in the days following the June surgery, he would have referred the deceased to a cardiologist for further investigation prior to administering a further general anaesthetic.

On 2 September 2011 the deceased and Ms Kerr attended a pre-admission clinic at EDH. RN Hastie was again the preadmission nurse at the clinic.

RN Hastie examined the deceased. She was aware the deceased had been in AF previously so performed another ECG. She advised Ms Kerr that the ECG results showed that the deceased was still in AF. She provided the ECG to the deceased to give to the anaesthetist, unaware

that the deceased had already seen Dr Byrne and had an ECG done specifically for him.

RN Hastie made inquiries over the telephone during the appointment with Dr Spencer in relation to the deceased's medications and was advised that he should stop taking Cartia three to four days prior to the procedure but to keep taking Coversyl. The deceased was also advised to fast from midnight prior to surgery.

Ms Kerr told RN Hastie the deceased's blood pressure had been a bit low (as they had the equipment at home to take those measurements) and at the appointment it was recorded at 94/55. RN Hastie said this did not cause her concern as the deceased was a relatively slight man, on hypertensive medication to lower his blood pressure, who presented as being well.

There was again no mention by the deceased of the chest pain which had occurred post-operatively in June and RN Hastie did not have access to the hospital file at that appointment. Ms Kerr said in evidence she thought she would have mentioned it but had no specific recollection about doing so.

RN Hastie said if she had been aware of the chest pain she would have discussed it with the deceased's GP, Dr Spencer, and possibly also raised it with the anaesthetist.

On the morning of 6 September 2011 the deceased was admitted to EDH for left-sided inguinal hernia surgery by Professor House with the anaesthesia administered by Dr Byrne. He was again accompanied by Ms Kerr and had been fasting since 6.30pm the previous evening.

The deceased was fifth on the list for surgery and, during the morning, complained of feeling "dry". With permission from Dr Byrne, the deceased was given some fluids I/V. The anaesthetic record shows the procedure commenced at 1pm and was completed at 2pm.

At commencement of surgery the deceased's BP was 160/80 and initially the deceased was anaesthetised with "bag and mask" but later was given a muscle relaxant and intubated. According to records, things went smoothly except for a transient drop in blood pressure midway through the operation to 80/50. This recovered within 5 to 10 minutes after a variation to one of the anaesthetic medications and was not thought to be significant at the time.

Once the operation was completed, Dr Byrne administered medication to further reverse the muscle relaxant, consistent with nerve stimulant tests suggesting reversal was already underway. The deceased started gagging on the tube, further suggesting he was being successfully reversed from the anaesthetic, and it was removed. The deceased's colour, oxygen and carbon dioxide saturations and blood pressure were all normal at that time and Dr Byrne described him as being awake and alert.

According to records, the deceased was taken into Recovery at 2.08pm where he was observed by RN Hastie, the Recovery Nurse that day. Almost immediately RN Hastie saw the deceased was agitated and "twitchy" and he told her he could not breathe. RN Hastie quickly assessed that the deceased was having trouble getting air in and she was concerned straight away. RN Hastie started monitoring the deceased by oximeter and blood pressure cuff and spoke to Professor House who was in the Recovery Room. She told him the deceased was not OK and Professor House went to get Dr Byrne. RN Hastie said her first thought

was that the deceased had not been reversed properly from the anaesthetic because of his "twitchy" limbs. Dr Byrne came out of theatre and, based on the thinking the deceased had not been properly reversed from the anaesthetic, administered further drugs to reverse any residual neuromuscular block. When there was no improvement, Dr Byrne directed the deceased be taken straight back into theatre where he was again connected to the monitoring equipment. Nurse Hastie said this entire process took about 4 minutes in total.

Dr Byrne formed the view the deceased was suffering bronchospasm, a recognised condition post anaesthesia. He administered a ventolin nebuliser to open the airways. RN Hastie called Dr Clingen, another GP Anaesthetist who was seeing patients a short distance away, and requested his assistance. She did this because she recognised there was a problem and it is usual practice to request the assistance of another doctor and she knew Dr Clingen was close by. Dr Clingen arrived within 5 to 10 minutes and, seeing the nebuliser was not resulting in any improvement, he and Dr Byrne decided to administer Aminophylline and Hydrocortisone to further dilate the lungs and increase respiratory drive. These were ordered, fetched and given at 2.40pm. There are no recorded oxygen saturation levels during this time but it was accepted by all those treating the deceased they were below normal, in the vicinity of 80%. The Aminophylline resulted in a slight improvement of the oxygen saturations, to close to 90%, so another dose was given, but the improvement was short lived. The oxygen saturations then rapidly dropped to around 40% at which point the deceased was very quickly intubated by Dr Byrne between 2.50pm and 3pm.

Dr Clingen and Dr Byrne explained why they were reluctant to intubate the deceased at an earlier time when his oxygen saturation was around

80%; as this level had been maintained for a number of minutes during suspected bronchospasm, a condition which is often effectively and quickly treated and reversed by means of bronchodilators, and there were no clinical signs of cyanosis, it was decided to attempt this low risk treatment first while the deceased was still relatively stable. Intubation on the other hand involves the administration of further sedation, which ultimately has to again be reversed (a process not without some risk) and a ventilated patient with pre-existing AF has an elevated risk of stroke or heart attack.

Obviously once the oxygen saturations dropped dramatically and quickly, intubation was the only option. Once intubation occurred the oxygen saturation quickly rose to 100% and the deceased's BP stabilized at 120/70. The bronchospasm resolved with sevoflurane (a vapour anaesthetic) and, as the deceased remained stable, Dr Clingen left at about 3pm.

Dr Byrne attempted several times to stop ventilation and see if spontaneous respiration would occur. Eventually spontaneous respiration began and some fluids were coming up the endotracheal tube. These were aspirated but the deceased's respiration was very fast but inadequate and the oxygen saturation fell to 75%. At this point, about 4.50pm, Dr Donald Howarth arrived to assist Dr Byrne. They decided to maintain a period of controlled ventilation to give them time to determine the initial cause of the problem in Recovery and to eliminate any reversible variables which were preventing the deceased from recovering properly. There were a number of possible diagnoses they were considering at this time, mainly focussed on either a problem with the deceased's lungs or his heart.

The deceased's blood pressure was continually falling after this time which suggested, after it responded to metaraminol, that the initial cause was cardiac failure. The oxygen saturation was persistently low at 90% even with 100% oxygen via the ventilator and there were crackles in the lungs. A chest x-ray confirmed pulmonary oedema (fluid on the lungs), consistent with the heart not pumping effectively enough to remove blood and other fluids from the lungs. At this point, the doctors began to see the earlier bronchospasm in a different light; as relating to either aspiration or pulmonary oedema, rather than a complication following anaesthetic.

As the sedation began to wear off, the doctors noticed the deceased had less movement in the right arm than the left, his right reflexes were reduced and he had an equivocal right plantar response. This raised the additional possibility the deceased had suffered a stroke and became a new, emerging potential diagnosis. The deceased opened his eyes and his pupils were alert and reactive, he made some movements to remove the tube but sedation was then reinstated so a CT scan could be performed to confirm any cerebral bleeding. There was no evidence of such bleeding, but small bleeds are not always visible on CT scans.

The deceased was also requiring increasing doses of metaraminol to maintain his BP so, after the CT scan, the decision was made to take the deceased to the resuscitation room rather than back to theatre. There an intraosseous needle was inserted into the tibia (shin) to enable use of inotropes, a smoother acting medication to improve blood pressure with benefits on heart activity. Such drugs would commonly be administered via a central line or intraosseous needle rather than by an I/V site due to the risks of using such drugs over a prolonged period via I/V.

Dr Howarth, who had the greater experience of the two doctors in intensive care medicine, made the decision to insert an intraosseous needle rather than a central line because it was a quicker procedure, had a higher first up success rate and fewer risks of causing a rupture of surrounding organs or vessels. The insertion involves using a large needle and, witnessed by the family members present, looked confronting and seemed to elicit a brief but painful reaction from the deceased. Not surprisingly, the family members were distressed at seeing this procedure.

The deceased's family, including his daughters Ms Kerr and Ms Cutten, had been permitted into the theatre at about 7pm and had remained with the deceased since that time. Initially they had been advised by a nurse on the ward that the anaesthetic had not been properly reversed, but later recalled being told by Dr Howarth the deceased may had aspirated or choked on something. Dr Howarth communicated with the family members throughout the evening as the situation changed. He also spoke over the telephone on a couple of occasions to Dr Amanda Smith, the niece of Ms Kerr, granddaughter of the deceased and an anaesthetist in Perth, to advise of the changing situation.

Dr Howarth and Dr Byrne recalled it being an ever-changing situation, with an evolving list of possible causes which were gradually being eliminated as medications were tried, results monitored and test results received. While it was important for Dr Howarth to keep the family updated, his focus was on treating the deceased.

Dr Byrne, who was the more experienced GP Anaesthetist of the two doctors, remained with the deceased throughout and did not communicate directly with the family members, although they certainly

had the opportunity to observe him working and discussing the treatment options with Dr Howarth.

By 8pm the deceased was self-ventilating, opening his eyes and moving all limbs. However, his BP continued to fall and did not respond to a noradrenaline infusion.

At 8.25pm an ECG showed new changes suggesting an acute myocardial infarction or heart attack and Troponin was positive, consistent with a recent infarct. At this stage it became clear to the doctors treating the deceased that he had suffered a heart attack and his heart was failing. Dr Howarth discussed this with the deceased's family and Dr Smith and the likelihood that the deceased would not survive.

At about 11pm, Dr Howarth went to get some sleep in a room at the hospital and Dr Byrne remained with the deceased. There was a gradual deterioration of the deceased over the following hours. At 11.30pm the deceased's blood pressure was 58/32 and his saturated oxygen was recorded to be 91%.

By 11.55pm he was still hypotensive and the notes state "*no further active intervention.*" The notes indicate his family members were present "*and accepting the outcome of non-survival*" at this point.

Dopamine was commenced at 12.25am "*as a last resort*" with some improvement in blood pressure and oxygen saturation. The deceased became unable to tolerate his tube and he was extubated at 1.30am. The deceased breathed spontaneously with a mask and his eyes were open but at 1.45am the deceased went into cardiac arrest and died.

On 8 September 2011, Dr Byrne attended the Esperance Police Station to report the death.

POST MORTEM EXAMINATION

A post mortem examination of the deceased revealed enlargement of the heart with coronary atherosclerosis (narrowing and hardening of the arteries supplying the heart) and age-related scarring and narrowing of one of the heart valves. There were some features of heart failure with congestion of body organs and increased fluid in body cavities. The recent operative site was unremarkable. Microscopic examination confirmed evidence of a recent small "heart attack"[1]. Toxicological analysis showed a number of medications at non-toxic levels consistent with the medical treatment administered.

ISSUES RAISED BY THE DECEASED'S FAMILY.

On 22 September 2011 the Kalgoorlie Court received a letter from Dr Smith dated 16 September 2011. As stated above, Dr Smith is the deceased's granddaughter and a specialist anaesthetist working in private practice in Perth. Dr Smith outlined several areas which were of concern to her in relation the medical care provided to the deceased during his last admission to EDH.

Sergeant Assisting the State Coroner then sought an opinion from Dr David Hillman, Head of Department of Pulmonary Physiology, Sir Charles Gairdner Hospital and Fellow of the Australian and New Zealand College of Anaesthetists to address those concerns. Dr Hillman provided a report dated 23 January 2012.

[1] Acute myocardial ischaemia

On 20 June 2012 a letter was received at the Kalgoorlie Court dated 15 June 2012 from Mr Billy Kerr ("Mr Kerr"). Mr Kerr is the deceased's son. This letter outlined several areas which were still of concern to him in relation the medical care provided to the deceased during his last admission to EDH.

The Inquest addressed a number of the issues raised by Dr Smith and Mr Kerr:

(i) The pre-operative assessment and care of the deceased in light of his cardiac problems

The deceased was seen on three separate occasions in the lead-up to his surgery on 6 September 2011; by the surgeon, Professor House, the GP Anaesthetist, Dr Byrne, and the nurse, RN Hastie, at the pre-admission clinic at EDH. Each consultation had a different focus and different information to provide to the deceased and to be gathered from him. The practitioner conducting each appointment also had different information available to him/her about the deceased.

Professor House explained:[2]

> I mean, the surgeon is interested in the procedure and what the procedure entails, the specific risks of the procedure, how difficult it would be, how long it is going to take, what general impact that might have on the patient. The anaesthetist is specifically interested in the cardio respiratory function of the patient, whether or not they are capable of handling that.

All practitioners knew about the chronic AF but it was acknowledged to be of long standing, with no associated changes to the ECG, and was not considered unusual in a man of the deceased's age. At the time all three practitioners saw the deceased for his pre-operative assessments, he was active, fit and well and did not complain of any pain in his chest or otherwise.

[2] ts.50 dated 11/9/2013

Professor House described the deceased as follows:[3]

> With Mr Kerr, he was an active man. He had a long-standing atrial fibrillation or cardiac problem but that didn't appear to be inhibiting his activities. He could walk normally. He could garden, do the things around the home, which indicates a degree of reasonable fitness.

There is no doubt the information about the chest pain suffered by the deceased on four occasions after the surgery in June 2011 was important information for each practitioner to know. In the case of Dr Byrne and RN Hastie, they both agreed if they had been aware of it, it might have altered the way they proceeded in respect to their assessments.

Dr Byrne did not have access to either the deceased's GP notes or the hospital notes at the time he saw the deceased in his rooms on 30 August 2011, nor was he prompted to look at them by anything the deceased or Ms Cutten told him or by anything later revealed in the ECG performed on the deceased at his request.

Dr Byrne gave evidence the appointment was one of five similar pre-operative appointments he had that day and took about 10 to 15 minutes. There is no evidence to suggest this was inadequate or any less time than a specialist anaesthetist would spend with a similar patient in Perth or elsewhere.

The only evidence of what occurred during that pre-operative consultation with the deceased comes from Dr Byrne. He said:[4]

> Then we asked about asthma, pneumonia, murmurs, rheumatic fever, high percentage arrhythmias, how we knew he had (indistinct) renal disease, liver and myocardial infarction and angina. The response to these were negative to everything.

[3] ts.50 dated 11/9/2013
[4] ts.198-199 dated 12/9/2013

> Now, the responses that you were writing down are actually what the patient is telling you. So you would have asked these questions directly to Mr Kerr?---That's right.
>
> And Mr Kerr would have told you yes, no, yes, no?---That's right.
>
> And were – can you recall if you were assisted by Mr Kerr's daughter when you were asking those questions?---Well, she was there and I don't think she made any comment for or against.
>
> But if you were not sure about an answer that Mr Kerr was giving or it was unclear, do you think you might have asked her some questions?---If I was unsure I would ask, yes, but I think she was sort of agreeing with what Mr Kerr said.

His notes of the meeting are recorded on the Pre-Anaesthetic Check he completed during that consultation which contains spaces for recording medications, allergies and observations of BP and the like, as well as lists of health conditions which are relevant for the anaesthetist to ask the patient.

Dr Byrne presented as a practitioner who was very concerned to be as thorough as possible in gathering information about a patient he had not seen before.

Dr Byrne noted the presence of AF twice on the form and "nil" adjacent to a number of conditions including angina. As to what Dr Byrne precisely said to the deceased to elicit those responses, he said:[5]

> Right. And did Mr Kerr tell you that he had been having chest pains?---No, none.
>
> Did his daughter tell you?---No.
>
> All right?---And there is no way, ever, that I will not be asking this question, after 40 years of anaesthesia, 100,000 patients I have treated in every walk of life, without asking this question.
>
> Have you had any recent chest pain?---Yes, have you had pain walking up hills and all that sort of thing, yes.

[5] ts.203 dated 12/9/2013

It would be unreasonable to infer that Dr Byrne only used the word angina, or that if he did use that term neither the deceased nor his daughter understood the significance of it with respect to the chest pain the deceased suffered after his first inguinal hernia surgery.

Given the evidence of the deceased's own interest in his health, the fact he had apparently suffered chest pain on more than one occasion prior to the first inguinal hernia surgery, the numerous attendances on him in hospital after the chest pain, after which on one occasion Dr McIntyre queried in the progress notes whether angina was a possible diagnosis, followed by two appointments with his GP after discharge from hospital during which the chest pain was discussed on at least one occasion, I would find it hard to accept the deceased had not heard the term angina or that he did not associate it in a general way with his chest pain.

As to whether Dr Byrne was told by the deceased there had been problems following the first inguinal hernia surgery, he said:[6]

> …There was absolutely no mention of any problem in that anaesthetic or in the post-operative recovery.
>
> Yes?~~~And I repeat that again: there was absolutely no mention by Mr Kerr or Mrs [Cutten].
>
> And did you raise with them – did you ask the question: how did you go with the anaesthetic with your previous operation?~~~It was two years ago. It's hard to know if I did that. I can't answer the question.

In a pre-operative appointment there is an onus both on the medical professional to seek relevant information and on the patient to divulge it. Where a patient is vulnerable due to age or infirmity, there may be a heavier onus on the medical professional to verify information, but the deceased did not fall in that category. I have no reason to doubt that Dr Byrne made thorough enquiries of the deceased as to his medical

[6] ts.218 dated 12/9/2013

history and I accept Dr Byrne was not, through that process, made aware of the prior incidence of chest pain.

When he was referred in his evidence to the references to chest pain in the progress notes after the first inguinal hernia surgery he said:[7]

> Yes. That's very interesting and during the pre-anaesthetic assessment there was no mention whatsoever of chest pain and I noticed in the three previous anaesthetics which I've learned since, resort to this, the three different anaesthetists have no indication of chest pain. Going through all the notes here I notice that he has had eight episodes of chest pain. Now, his daughters have asked for investigation of chest pain. One daughter talking about chest pain with effort, four cases post-op which I didn't know about, two previous cases in 2010. Now, here's a man with ischaemic heart disease has not presented to me these problems. Now, with his a trial fibrillation and 86 and ischaemic heart disease it would be very unlikely that we would proceed without a cardiologist's assessment, so rightly pointed out by Dr Smith.
>
> Yes?---I had no idea, none whatsoever.
>
> So, none of that was brought - - -?---And of course in the medical history nothing was talked about his two cataracts – that wasn't mentioned, although they're only minor sedations and his previous pneumonia and so-called valvular heart disease. There was nothing of that brought up at all.

This evidence raises the fact that other aspects of the deceased's medical history were also not divulged to other anaesthetists or to Dr Byrne during that pre-operative appointment.

Clearly Dr Byrne was willing to seek further information about the deceased if necessary because he looked at the anaesthetic records on the hospital file prior to the surgery because he was aware of the AF and wanted to see what anaesthetics and methods of delivery had been used on the deceased, successfully, in the past. Had he been aware of the incidence of chest pain following the June surgery, he said he would have referred the deceased to a cardiologist for further investigation prior to surgery or discussed the matter with the deceased's GP, Dr Spencer.

[7] ts.202-203 dated 12/9/2013

Had Dr Byrne been given access to the deceased's GP file or a letter of referral from his GP, I have no doubt he would have acted differently.

RN Hastie conducted her assessment at the hospital without access to the hospital file during the assessment. If she had access to the progress notes following the first inguinal hernia surgery, it may have prompted her to ask further questions of the deceased or Ms Kerr about the chest pain, ask further questions of Dr Spencer during her phone call to him or bring the matter to Dr Byrne's attention. RN Hastie was otherwise proactive in making enquiries of Dr Spencer about the deceased's medications and also in bringing the AF to Dr Byrne's attention by performing an ECG and handing the printout to the deceased to give to Dr Byrne, unaware Dr Byrne had already ordered and received his own ECG results.

I have no doubt RN Hastie conducted a thorough pre-operative assessment of the deceased in line with her qualifications, experience and the information available to her at the time.

RECOMMENDATION No. 1

I recommend that any GP referring a patient for surgery provide a detailed medical history to the surgeon and also to the hospital where the surgery is to be performed, to be distributed in advance of the surgery to the anaesthetist who is to administer the anaesthetic during the surgery and the practitioner who performs the hospital pre-admission check.

When Professor House saw the deceased on 14 July 2011, the appointment was both for a post-operative review of the first inguinal hernia surgery and pre-operative appointment for the second inguinal hernia surgery.

During that appointment Professor House was aware of one incidence of chest pain after the first inguinal hernia surgery as he had visited the deceased post-operatively on 2 June 2011 and it was recorded in the progress notes. Professor House did not consider it of significance when reviewing the deceased for the second surgery because he believed the pain had been brief, was not associated with any ECG changes and had resolved quickly. He also considered it would have been brought to the attention of the deceased's GP, who would have been familiar with the deceased's cardiac problems and who would have initiated further investigation if necessary.

Ms Kerr was also present at that appointment and, as to whether the chest pain the deceased had experienced after the first inguinal hernia surgery was discussed, she said:[8]

> No, not in detail. No, I don't recall talking about it in detail at all. I would have said – I would assume I said he had some chest pain. I was more concerned that dad wouldn't have any painkillers, …I assume that was resolved. Like, he was in hospital, he had chest pain. We were told to have – and we hadn't experienced it again, so I – you know.

The inference from this evidence is that Ms Kerr also did not consider the chest pain to have been significant because it had resolved and may not have brought it to Professor House's attention.

Professor House also stated the deceased[9] "*didn't appear to have significant heart problems. He didn't have any evidence of heart failure. He wasn't getting angina when he walked. He didn't have*

[8] ts.15 dated 11/9/2013
[9] ts.78 dated 11/9/2013

swollen legs from cardiac failure". Consequently Professor House stated that, even if he had been aware the deceased may have had an old infarct, or that he had further episodes of chest pain after 2 June 2011, it would not have changed his view that surgery was appropriate.

As to whether the extent of the deceased's ischaemic heart disease was, or should have been, evident prior to his death in light of the chest pain after the first inguinal hernia surgery, Dr Hillman stated:[10]

> I think that – think that it's obvious that – that he has cardiac – he had cardiac disease. That's obvious. How brittle or unstable is a little – a little bit unclear. I think – think that it's not just the – I mean, the – the perioperative events previously help inform that, but it's really how he travelled in the – in the three months between the operations, I think would be – would be some guide as to, you know, what – how – how to weigh those risks in relationship to the – to the more recent operation. The impression I got from the notes was that he was – that – that these issues having – having been thought about at – at the time of the – the few days post-operatively earlier on, had settled.

As to the significance of the chest pain the deceased suffered after his first inguinal hernia surgery, Dr Hillman commented:[11]

> Self-limited chest pain, no ECG (indistinct) new ECG changes – I think that kind of puts it in a – it's – that – that puts the issue to some extent to bed. It – it – it reveals a vulnerability, but if the vulnerability is adequately managed and the chest pain settles down and there's no – no (indistinct) all the vital signs are – are stable, and the patient is comfortable, then I think you can move on from – from – from that event. So I imagine that's – again, I don't know, but I imagine that's the – the sequence of thinking that occurred there.

And further:[12]

> I think a chest pain pre-interval of three months between the operations, would be – I would find reassuring.

[10] ts.264 dated 13/9/2013
[11] ts.268 dated 13/9/2013
[12] ts.271 dated 13/9/2013

(ii) The appropriateness of this of surgery being conducted in EDH and of the explanation of risk to the deceased

Professor House and Dr Byrne both said they explained the risks of the procedure and anaesthetic to the deceased at the pre-operative appointments. Both are very experienced practitioners in their fields and clearly have developed over the years their own manner of communicating this information to patients.

The deceased was a physically and mentally active man who took an interest in his own health and was supported in this by his daughters.

Both practitioners acknowledged that the deceased, by virtue of his age, hypertension and AF, was at higher risk of complications during and following surgery. Professor House expressed there was also a high risk to the deceased in not performing the hernia repairs and explained there is a fine balance in explaining risk to patients so that they do not become overwhelmed.

Professor House could not recall that he used any different language or method in explaining the risks involved to the deceased in light of his higher risk category other than perhaps being[13] "*a bit blunter*". He spoke to the deceased and Ms Kerr again on the morning of the surgery and recalled being asked to "quantify" the risk by Ms Kerr but did not feel comfortable expressing it in those terms.

Professor House stated he had the opportunity to explain the risks of surgery to the deceased on more than one occasion during the course of pre-operative appointments before the first inguinal hernia operation, and then prior to the second surgery both in his rooms preoperatively

[13] ts.76 dated 119/2013

and on the morning of the surgery. He had a clear recollection of the discussion on the morning of 6 September 2011 with the deceased's daughter[14] "*because I was put on the spot about the level of risk*".

Ms Kerr's evidence about those meetings was more general. She stated:[15]

> I mean, we asked the general questions and dad was – like I said, he read medical books at home, and, you know, he was aware and we were aware there were risks with any procedures.

In relation to the pre-operative appointment with Professor House on 14 July 2011 she said:[16]

> Dad – after the first operation, dad just thought Professor House was his hero in the sense that he'd always had these hernias, and, you know, he'd had it done, and there was – I'm – I think I raised a question about risks involved, and Professor House said, "Well, there's risks with any surgery, Harry", and, you know, "You're an old man and, you know, there's always risks." But there was nothing mentioned that, "Well, because you had severe chest pain or because you have" – you know, it was just all routine and we were chuffed to go ahead with it.

Ms Kerr said she did not have a direct recollection of this conversation but had made notes in a medical journal she kept, which Ms Kerr did not have with her in court to refer to.

Ms Kerr recalled Professor House visiting the deceased in hospital on the morning of the surgery on 6 September 2011 but did not mention a further discussion about risk and was not questioned about it.

I accept Professor House's evidence that he had a discussion with the deceased about the risks of the second surgery on two occasions prior to the procedure, in addition to similar discussions prior to the first inguinal hernia surgery, and I accept his evidence he was questioned further, and more directly, about those risks by Ms Kerr on the morning of the surgery.

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[14] ts.59 dated 11/9/2013
[15] ts.14 dated 11/9/2013
[16] ts.15 dated 11/9/2013

Because Professor House was under the impression the deceased preferred to have the surgery close to home, he did not discuss the possibility of performing the surgery elsewhere. He stated:[17]

> …it was made clear to me either verbally or otherwise that they would prefer it in Esperance.

Professor House stated he did not suggest to the deceased the surgery would be better done elsewhere, because he did not believe it would be.[18]

The surgical repair of the hernia is a relatively simple procedure which Professor House had performed many hundreds of times in Esperance. He also had operated for many years at EDH as part of a surgical outreach program and spoke very highly of the surgical facilities and professionalism of theatre staff at EDH, in particular the GP anaesthetists.

He pointed out that elderly patients, with their co morbidities, are the patients for whom travel to Perth for surgery can be particularly onerous.

Professor House considered the risk factors in a rural hospital to be more of an issue for the anaesthetist to assess in whether they would be comfortable administering the anaesthetic in those circumstances.

Professor House said he did not have any concerns in performing the surgery on the deceased at EDH.

Dr Byrne was aware the deceased had some high risks going into surgery; he was 86 years old, with hypertension and AF and had

[17] ts.47 dated 11/9/2013
[18] ts.46 dated 11/9/2013

smoked for many years with possible COPD. Dr Byrne assessed him as a "moderate" risk patient (with a risk of stroke of seven per cent within his age group and the risk of rapid AF causing heart failure). As a result, Dr Byrne said he "*agonised*" whether to do a general or spinal anaesthetic but was reassured the deceased had successfully had general anaesthetics recently (February, June and July 2011)[19].

Dr Byrne must have mentioned this to the deceased on the morning of the surgery in the presence of Ms Cutten because Ms Kerr said, about when she returned to EDH to see the deceased before he had been taken for surgery:[20]

> Also, Sue said that Dr Byrne had said he may consider giving dad an epidural.

Dr Byrne gave evidence he discussed these options with Dr Howarth on the morning of the surgery but they concluded the risk was similar for both procedures.

Dr Byrne did not discuss with the deceased whether he should have the surgery in Perth. The following exchange took place in evidence:[21]

> Did you discuss with the patient and his daughter the possibility of having the surgery performed in Perth rather than in Esperance?---No, I don't think I did. I was under the impression they were very keen to have it here. My reading that, you know, he was very, very keen, didn't want it in Perth. That was my impression.
>
> Yes. Can you explain – and I know it's a couple of years ago now, but how did you form that impression?---I think it was from Mr Kerr and his daughter. They'd had the one operation, they didn't complain about the problem. If they had problems there and worried, they wouldn't be coming back to have it here.
>
> True?---So that was a sort of, you know, reassurance. Surely if someone has had a major problem post-op you would say saying, "Well, I'll go to Perth." But because of his wife's condition I think this was the driving force to carry on here.

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[19] ts.202 and 240-241 dated 12/9/2013
[20] ts.17 dated 11/9/2013
[21] ts.224 dated 12/9/2013

> Did anybody say anything to you that led to that conclusion?---No, it's an assumption.

Neither Professor House nor Dr Byrne was of the view it was unusual to perform this type of surgery on a man with the deceased's risk factors at EDH. They were clearly of the view they were able to manage those particular risks at EDH, with the facilities and experience available there. General surgery in regional centres for people young and old, where appropriate, is a very important service for practitioners, patients and the health system alike.

It is difficult to speculate now about what the deceased might have done if Professor House or Dr Byrne told him in blunter or more explicit terms in the manner suggested by Ms Kerr about the risks of having the surgery, or of having the surgery in EDH. I accept the deceased was appropriately informed of the risks of this particular surgery and was in a position to inform himself further or ask specific questions if he wanted further information. A risk of complications during or following surgery, be it high, moderate or otherwise, is still a risk with potentially serious consequences, to be weighed against the risk of not having the surgery (also potentially lethal), and one which the deceased accepted by consenting to the surgery in EDH. It is also impossible to say the outcome for the deceased would have been different if he had decided to have the surgery performed in Perth.

Dr Hillman said:[22]

> I operate in a tertiary hospital environment, and we deal with a lot of high-risk patients here, and it's a good place to deal with high-risk patients. But it (indistinct) in Mr Kerr's case, this – this sort of scenario, in this sort of age group, is not unusual, and – and it – it doesn't necessarily require the – the resources of a place like this, that – that – that – like I work in, and – and of course the extent of the risk – it was a – it looked like manageable risk, but based on – on the information – the pre-operative information, including the post-operative course of the previous operation, it looked like manageable risk, and – and I think – and my thoughts, from what I could glean from the

[22] ts.266 dated 12/9/2013

> notes, was that – that – that it – a balanced – a reasonably balanced decision had been made. If you want to minimise risk, you know, you can – you add – add more and more resources, and then – then you're weighting – weighting risk. But even under the best circumstances, people with these sorts of cardiac vulnerabilities, and – and at this age group, it – the outcome may have been exactly the same.

(iii) The procedures followed by all health practitioners following the deceased's deterioration post-operatively and the accuracy of their communication with family members.

In the minutes following the deceased's deterioration in the Recovery Room, RN Hastie and Dr Byrne worked quickly to assess the situation based on their clinical observations and experience. Dr Byrne first worked on the assumption, based on those observations and experience, that the deceased may not have been properly reversed from the anaesthetic and administered further drugs to correct this. It then became apparent the deceased was in bronchospasm, and the ventolin nebuliser was administered to open the airways. Again this treatment was given quickly in the expectation it would resolve a problem which is not uncommonly seen in patients emerging from anaesthesia. There was no evidence either of these treatments would cause harm to the deceased, even if the underlying problem was a different one.

I am satisfied this process of assessment and treatment occurred continuously within 20 to 25 minutes after the deceased arrived in Recovery and was entirely appropriate for a patient who had oxygen saturations which were low, but steady, and who showed no clinical evidence of cyanosis.

Dr Hillman supported the fact this course of treatment was a reasonable one. He said:[23]

> Now, I agree with what you have just put to me that Dr Byrne was reassured by a conscious state. That's certainly an important factor here, so a

[23] ts.283 dated13/9/2013

> saturation in the 80's combined with consciousness gives you time, I think, to try these other things.

Once Dr Clingen arrived and observed there was no improvement with ventolin, the order was given for the administration of Aminophylline and Hydrocortisone, which occurred at 2.40pm. As this resulted in a brief improvement in blood oxygen saturations, it was reasonable to continue with this treatment until the plummeting oxygen saturation made it apparent intubation was necessary and this occurred in a rapid and professional way.[24]

Had the practitioners known at the point of initial respiratory difficulty at about 2.10pm that the deceased's cardiac event had already occurred (if indeed it had), it is possible they would have decided to intubate at that point. However, they administered appropriate treatment in a timely way based on their clinical observations and experience, and their desire to delay intubation until other treatment had been attempted was a reasonable one based on the risks involved in intubation.

This is supported by the evidence of Dr Hillman:[25]

> …but at the time, I think the – there were thoughts or steps made and – and they were put into a reasonably logical sequence, and the preparations for reintubation were there. And it was eventually done. And you could argue about the exact timing of it, but clearly, this thing – this sequence of events played itself out, so that the result that occurred was the kind of part of that – you know, it was, yes, at the right point in a logical sequence.

There is also no evidence the decision to intubate at close to 3pm rather than at 2.10pm contributed to the deceased's death. While Dr Hillman indicated he may well have intubated earlier, faced with a similar situation in a tertiary hospital with access to an ICU, he also said:[26]

[24] ts.287 dated 13/9/2013 evidence of Dr Hillman
[25] ts.288 dated 13/9/2013
[26] ts.288-289 dated 13/9/2013

> I mean, it just may have been a – it sounds like a very significant cardiac event and in an elderly person. The outcome may well have been exactly the same.

Dr Hillman elaborated further:[27]

> And there's absolutely no doubt here that the sequence of events, the reintubation was the next step, but the step after that is intensive care. And with a none too certain outcome at the end of that. So it's not a case of intensive care and all will be well. Here is a desperately unwell person with a new infarct, elderly, with none too good coronary vasculature, as it turns out. It's – it's – this is a difficult medical problem.

I accept the evidence of Dr Byrne, Dr Clingen and RN Hastie about the deceased's oxygen saturation levels during the period leading up to intubation. While nobody recorded the precise levels during that time, clearly that was due to the focus of the practitioners being directed to treating the deceased rather than neglect or disinterest on their part. I accept the oxygen saturations remained at levels between 80 to 90% during that time and that, as soon as they plummeted below that, the deceased was intubated.

Dr Clingen relied on a misrecording of information in the medical records when he gave his initial report to the Coroner about oxygen saturations during this period, and this inaccuracy (which was readily apparent on close review of those records) was corrected during Dr Clingen's evidence. I also note Dr Hillman had Dr Clingen's original, and incorrect, report when he gave his initial opinion yet it did not cause Dr Hillman concern.

There is no doubt the period up until about 9pm after the deceased's surgery was a busy time for the practitioners involved and time was measured in minutes rather than hours. The doctors treating the deceased were involved in a process of elimination to determine and treat the initial cause of the deceased's respiratory difficulties by

[27] ts.298 dated 13/9/2013

conducting tests, administering treatment and observing responses. Unfortunately, once the cause became clear at about 8.30pm, it was apparent that it was unlikely any further treatment would alter the outcome.

Some information was conveyed to family members in the early stages via staff not directly involved in treating the deceased, which perhaps led to inaccuracies or lack of detail, but I accept the doctors and nurses involved at that time were focussed, appropriately, on the deceased and that, up until about 3pm, they believed they were treating a fairly easily reversible condition. Between 3pm and 7pm there may have been a lack of accurate communication with the family which no doubt impacted on their perceptions of what followed. I also accept that for the family members this was an extremely emotional and distressing time and their recollection of exactly what was said, when and by whom, may be impaired as a result.

Dr Howarth's recollection was he was pretty certain he did explain to family members what he was doing to treat the deceased and why. He said that while he tries to give family members up to date news, the deceased's situation was one of rapid change characterised by transient improvement followed by more sustained deterioration. This may have led to some confusion in that communication.

One procedure which clearly distressed Ms Kerr was the use of the intraosseous needle to allow for the administration of inotropes. When explained in a courtroom setting, I am satisfied it was an appropriate and necessary procedure and one which was performed with expertise and professionalism. Again due to the rapidly fluctuating situation, and the need for the doctors to continually respond to it, the nature of the procedure may not have been adequately explained to family members

nor the reasons for it, and that no doubt contributed to Ms Kerr's distress. However, I have no doubt it was appropriate medical treatment in the circumstances.

Decisions were made in respect to calling in doctors to assist Dr Byrne, rotating nurses who had already worked a shift but would be required to work longer to help care for the deceased and allowing nurses to eat in theatre so they could have a break while continuing to be present to care for the deceased. These decisions were all appropriate in the circumstances and were no reflection on the standard of care provided to the deceased.

The evidence clearly demonstrated that all the doctors and nurses who cared for the deceased until his death did so with dedication and professionalism in difficult circumstances. They also allowed the deceased's family to be with him continuously from about 7pm, while they continued to treat him. This continuity of care and access for his family may not have been possible in a tertiary hospital in Perth.

(iv) The opportunity to transfer the deceased to a hospital in Perth following his deterioration.

Before the deceased could be considered for a transfer to a hospital in Perth, he had to be stable enough that he could survive a flight on a Royal Flying Doctor Service ("RFDS") plane. Such transport is not undertaken lightly and evidence was given by Dr Howarth of the logistics and limitations of that process, in particular that it cannot be commenced until the patient is stable, usually takes in the vicinity of 6 ½ to 8 hours to complete and is practically very difficult due to confined spaces, lack of light and restrictions on monitoring equipment.

Dr Howarth was of the view that it was not until late in the evening that the deceased was stable enough to begin contemplating a transfer via RFDS. At that point, however, the deceased's cardiac failure was evident and Dr Howarth discussed with the deceased's family, including Dr Smith, that the deceased was not likely to survive so a transfer was no longer appropriate. His family were therefore able to remain with him until he passed away.

(v) The currency of experience and qualifications of Dr Byrne, as a GP Anaesthetist

Dr Byrne is a registered medical practitioner with qualifications including a Diploma of Anaesthetics. He has practiced anaesthesia for 40 years; for 33 years in Esperance as a GP Anaesthetist and gave evidence he has been the anaesthetist in 7000-8000 surgeries in that time.

Dr Byrne is one of a number of GP's in Esperance who practice anaesthetics and obstetrics, due to the lack of specialists in these areas who travel to rural WA and the obvious need for these services in such communities.

In order to practice as a GP Anaesthetist, a practitioner must be credentialed by the WA Country Health Service ("WACHS") Credentialing and Scope of Practice Committee.

Part of that credentialing process was for the practitioner to keep log books of all anaesthetics administered so that they could be reviewed by specialist practitioners when required. The practitioner would also have to attend continuing medical education in that area. Practitioners need to apply to be recredentialed; the frequency of which is dependant

on the number of procedures performed, at which time they would need to provide proof of that continued training and log books.

The Royal College of Anaesthetists does not provide specific training for GP Anaesthetists so it is for GP Anaesthetists to attend appropriate training themselves. Sometimes that is provided by Rural Health West in regional locations. GP's can also attend training elsewhere as it arises of their volition.

It was not in issue at the inquest that Dr Byrne was credentialed by WACHS at the time of the deceased's death. He was re-credentialed in 2009, then again after the deceased's death in 2011. He recently retired from practise as a GP Anaesthetist.

Dr Byrne had not had his log books reviewed by WACHS during the re-credentialing process, although he had maintained them. His continuing education included monthly academic meetings with all Esperance practitioners, a 2-yearly anaesthetic refresher course and attendance some years ago at St Vincent's Hospital for a week with the Head of Anaesthetics, as well as a fellowship in Perth hospitals which involved attending Sir Charles Gairdner Hospital to study anaesthetics management. Dr Byrne gave evidence that he had never had an adverse incident as a GP Anaesthetist.

It was clear from the evidence the WACHS credentialing process is an evolving one and the system in place at the time of the deceased's death was flawed. Log books were not being routinely reviewed, including that of Dr Byrne, and in any event were not an ideal way of verifying a practitioner's experience or competency. The process is being changed from a local, paper-based system to a centralised electronic database which will make review by WACHS more regular and consistent, and

experience and competency will be measured in more rigorous ways that can be independently verified.

While the system of credentialing at the time of the deceased's death was inadequate, I am satisfied the performance and conduct of Dr Byrne as a GP Anaesthetist was entirely appropriate and reasonable and the failure by WACHS to review his log books did not contribute in any way to the death of the deceased.

I am also satisfied WACHS have taken appropriate steps to rectify the process and enforcement of credentialing of GP Anaesthetists.

CONCLUSION

The deceased was an 86 year old man with health issues including hypertension and ischaemic heart disease. On 6 September 2011 he underwent surgery for a left inguinal hernia. A short time after leaving theatre, the deceased had difficulty breathing and, after other measures to help him breathe were unsuccessful, he was reintubated. The deceased continued to be unstable for several hours, during which time his blood pressure remained very low. In the early hours of 7 September 2011, the deceased was extubated and breathed spontaneously for a short time before going into cardiac arrest.

The post mortem examination revealed that atherosclerosis of the arteries supplying the heart had restricted the blood flow to the deceased's heart, resulting in him suffering a small "heart attack" during or soon after his surgery and general anaesthesia. The deceased subsequently developed features of heart failure resulting in his death.

About one and a half hours into the surgery, the deceased's blood pressure dropped, which at the time was quite reasonably attributed to

the known effects of one of the anaesthetics. However, in hindsight, as Dr Hillman said:[28]

> Well, an intraoperative coronary ischaemia was the beginnings or an evolving infarction, myocardial infarction. That seems to be what has – what has happened here, I think, is that he has actually sustained a myocardial infarction at or around this – this time.

While other reasonable possibilities were considered during the care of the deceased following surgery and his deterioration, subsequent events and the post mortem examination confirm acute myocardial ischaemia was the predominant problem. I am satisfied this occurred either during surgery or very shortly after the surgery finished.

I am satisfied based on the evidence and the expert review of the deceased's care nothing further could have been done to treat the deceased without the resources of an intensive care unit and, even then, the prognosis for the deceased would have been poor.

I find death arose by way of Natural Causes.

F ZEMPILAS SM.
CORONER
Kalgoorlie
11 November 2013

[28] ts.273 dated 13/9/2013