



FINDING OF INQUEST

An Inquest taken on behalf of our Sovereign Lady the Queen at Adelaide in the State of South Australia, on the 23rd, 24th, 25th, 29th and 30th days of March 2021 and the 31st day of January 2023, by the Coroner's Court of the said State, constituted of David Richard Latimer Whittle, State Coroner, into the death of Ronald Bromage.

The said Court finds that Ronald Bromage aged 72 years, late of 19 Woodside Beach Road, Woodside, South Australia died at the Royal Adelaide Hospital, North Terrace, Adelaide, South Australia on the 4th day of March 2016 as a result of acute cerebral infarction complicating acute myocardial infarction. The said Court finds that the circumstances of his death were as follows:

1. Introduction and reason for inquest

- 1.1. Mr Ronald Bromage died on 4 March 2016 at the Royal Adelaide Hospital, aged 72 years. His cause of death as stated in a pathology review was 'acute cerebral infarction complicating acute myocardial infarction'.¹
- 1.2. Mr Bromage was in a category of patients that placed him at a high risk of acute coronary syndrome, a term used to describe a clinical presentation of two out of three of chest pain, serial ECG² changes of myocardial ischaemia and elevated biomarkers (serum troponin) due to inadequate blood supply to the heart due to narrowing of heart arteries, most commonly coronary atherosclerosis with thrombosis.³
- 1.3. On 22 February 2016, because of chest pain, Mr Bromage consulted his local general practitioner Dr John Parker in Elliston, South Australia. Dr Parker concluded that he

¹ Exhibit C2a

² Electrocardiogram

³ Evidence of cardiologist Dr William Heddle, Transcript, page 325

was suffering from costochondritis, a benign condition. He did not first undertake straightforward tests⁴ to exclude that the cause of Mr Bromage's chest pain was acute coronary syndrome, a condition which is often fatal if not treated.

- 1.4. Three days later, on 25 February 2016 Mr Bromage was suffering ongoing chest pain and telephoned Dr Parker, who referred him to the Elliston Hospital. There he was seen by a registered nurse, who discussed by telephone with Dr Parker the symptoms she observed. Those symptoms, as she described them to Dr Parker, were consistent with those observed by the doctor three days earlier. This, together with some other matters, satisfied Dr Parker that his earlier diagnosis of costochondritis was correct and that there was no need to undertake ECG and troponin tests to exclude acute coronary syndrome. He directed the nurse not to do so.
- 1.5. Another three days later, on 1 March 2016, Mr Bromage presented at the Elliston Hospital where he was admitted with a fever, complaining of a lack of appetite and abdominal pain. Dr Parker considered him to be dehydrated and to have an infection. Mr Bromage was not complaining of chest pain and ECG and troponin testing were not considered by Dr Parker. A chest X-ray was undertaken, and intravenous antibiotics were ordered.
- 1.6. During that evening Mr Bromage suddenly deteriorated. Later, after an emergency transfer to the Royal Adelaide Hospital, he died.
- 1.7. Dr William Heddle, a specialist cardiologist, was engaged by the Coroners Court as an independent expert to examine the circumstances of Mr Bromage's case, provide a report and give oral evidence. Dr Heddle examined the traces from an ECG taken during Mr Bromage's final admission, from which he concluded that Mr Bromage was in all likelihood suffering a myocardial infarction at the time of his first visit to the general practitioner and that this continued until his final presentation to hospital, by which time the infarction was so advanced that it was too late to undertake the life-saving and extending measures which were readily available, if Mr Bromage had been correctly diagnosed on the occasion of the first visit, or even on the second occasion.

⁴ Serial ECG and troponin testing

- 1.8. An inquest was held in this case to examine and make findings as to:
- the management of Mr Bromage's chest pain between 22 February and 1 March 2016 inclusive; and
 - the response to Mr Bromage's collapse whilst in hospital at 2230 hours on 1 March 2016 in hospital at Elliston.
- 1.9. Also considered in the inquest was evidence of Mr Bromage's earlier 2013 presentations to the Elliston Hospital and then to Dr Parker's predecessor at the Mid Eyre Medical Centre, Dr Jags Trivedy, and whether in 2016 Dr Parker accessed those records to inform himself of the outcome. The 2013 presentation was for chest pain and Dr Trivedy undertook a cardiac investigation which was likely incomplete. Results from tests at that time showed that Mr Bromage was suffering hypercholesterolaemia, which placed him at substantial risk of coronary artery and heart disease.
- 1.10. Failures to undertake ECG and troponin testing to exclude acute coronary syndrome as the cause of chest pain, despite the often-fatal consequences of failing to identify that cause, have been the subject of previous inquests undertaken by this Court. Recommendations have been made which ought to have ensured that clinicians do not fall into the error of diagnosing benign conditions without undertaking ECG and troponin testing to exclude the extremely dangerous condition of acute coronary syndrome, when the symptoms are also not inconsistent with that condition.

2. Cause of death

- 2.1. There was no controversy at the inquest about Mr Bromage's cause of death. Dr Iain McIntyre, a medical practitioner employed at Forensic Science South Australia, undertook a review of the hospital and medical records, discussed the case with senior forensic pathologist Dr Stephen Wills and proffered the opinion that the cause of Mr Bromage's death was acute cerebral infarction complicating acute myocardial infarction. I accept and find that Mr Bromage's cause of death was acute cerebral infarction complicating acute myocardial infarction.

3. Social background

- 3.1. Mr Bromage's daughter Michelle Tschugguel provided background information about her father. He was born in Melbourne on 30 July 1943 to parents Claudia Dower and Clyde Bromage. In the 1970s he met and later married his wife June and together they

had three children Michelle, Angela and Julie. They moved to Port Albert, Victoria in 1976. Mr Bromage worked as a driller, sinking water bores in regional Victoria. At some stage in his mid-30s he had an accident in which he suffered a crush injury to his chest, resulting in early retirement and chronic chest pain. Ms Tschuggel advises that when her father suffered pain, he would describe it as like suffering a heart attack.

- 3.2. In the late 1980s Mr Bromage moved to a 10-acre property where he planted hundreds of proteas and established a small business called Port Albert Wildflowers. Later, he returned to live in the town of Port Albert.
- 3.3. Following his separation and divorce from June, he purchased a 4-wheel-drive and caravan and lived as a grey nomad, for many of those years with a partner, Puri Ranos. He maintained a close relationship with his children and grandchildren.
- 3.4. One of his favourite fishing places, where he spent a lot of time, was Venus Bay on the West Coast of South Australia. He was living there in the caravan park at the time of his death.

4. Mr Bromage's presentation for chest pain in August 2013

- 4.1. Mr Bromage's consultations in 2013 with Dr Jags Trivedy at the Mid Eyre Medical Centre provide important background for Mr Bromage's February and March 2016 consultations with Dr John Parker, Dr Trivedy's successor at the Mid Eyre Medical Centre.
- 4.2. From the evidence of the 2013 consultations, it may be seen what Dr Parker would have learned about Mr Bromage if in February 2016 he had accessed the full records of those consultations. I shall also set out the evidence of Dr Heddle as to the significance of Mr Bromage's 2013 medical consultations.
- 4.3. Notes from the Elliston Hospital record that Mr Bromage was conveyed by ambulance on 21 August 2013 after suffering crushing chest pain whilst getting bait before taking his boat out fishing.⁵ The nursing staff at the hospital consulted his general practitioner, Dr Trivedy by phone. Two ECGs were performed and interpreted by Dr Trivedy as showing normal sinus rhythm. Two troponin tests indicated no elevation. Having regard to these tests Dr Trivedy ruled out a cardiac cause of the chest pain. He noted

⁵ Exhibit C4

Mr Bromage's past medical history of gastro-oesophageal reflux disease and hypertension and diagnosed a left chest intercostal muscle strain. Celebrex, a nonsteroidal anti-inflammatory, and paracetamol were prescribed. The ECG results were sent by facsimile to iCarNet,⁶ an expert cardiology advice and support and ECG interpretation service. Mr Bromage remained in hospital overnight with instruction for another ECG and troponin to be taken eight hours after admission.

- 4.4. Dr Trivedy saw Mr Bromage at the Elliston Hospital the next day, by which stage he had had a further ECG and (negative) troponin test. He was comfortable with minimal pain. Mr Bromage told Dr Trivedy he had previously had a crushing chest injury after a shed fell on his chest and said he had an effort-ECG three years post injury, which was fine. Dr Trivedy recorded in the notes, as a query, '*May benefit from another effort-ECG check?*' The doctor also noted that he would do a referral to Dr (Rufus) McLeay, a physician practising in Port Lincoln, to consider. Inquiries were made pending this inquest which revealed that Dr McLeay was not contacted in relation to Mr Bromage.
- 4.5. Dr Trivedy's notes of these investigations appear as handwritten notes in Mr Bromage's Mid Eyre Medical Centre records.⁷
- 4.6. Records show that Mr Bromage consulted Dr Trivedy at the surgery five days later, on 26 August 2013, regarding hypertension, gastro-oesophageal reflux disease (GORD) and pain. He was prescribed perindopril for hypertension and Nexium for GORD, as well as Panadeine Forte for pain. Dr Trivedy also ordered a lipid study blood test. Notes of this consultation appear as typed notes in the Mid Eyre Medical Centre records.
- 4.7. The test results of the lipid study were held in the Mid Eyre Medical Centre records. Total cholesterol was outside the desirable range, LDL cholesterol was outside the desirable range and the total cholesterol/HDL ratio was also high. The report referred to there being no previous lipid test results available and recorded a diagnosis of hypercholesterolaemia. It pointed out that raised LDL is a risk factor for coronary heart disease and suggested a review of coronary heart disease risk factors, monitoring of diets and retesting with a full lipid profile in three months, after a 12-hour fast.

⁶ Later known as iCCnet SA - <https://www.iccnetsa.org.au/about-us.aspx>

⁷ Exhibit C3

4.8. There is no record in the Mid Eyre Medical Centre notes of Dr Trivedy seeing Mr Bromage again, or of the test results as to hypercholesterolaemia being acted upon with any further assessment of coronary heart disease risk factors or further lipid profile testing. Neither is there any record of contact with Dr Trivedy by the specialist cardiology staff at iCarNet. Further, there is no such evidence in the Elliston Hospital notes.

5. What treatment was indicated for Mr Bromage following his 2013 presentation?

5.1. Dr Heddle gave evidence that if Mr Bromage did undergo the further assessments proposed by Dr Trivedy, then, if after three months of appropriate dietary management Mr Bromage's cholesterol was still at the very abnormal levels disclosed by the lipid study, he would have qualified under the Pharmaceutical Benefits Scheme guidelines for statin therapy to lower his cholesterol, which has been shown to work in primary prevention of coronary artery disease. Dr Heddle elaborated that where a patient has high cholesterol but no proven coronary disease, such treatment (statins) has been shown to prevent atherosclerosis leading to myocardial infarction.

5.2. Dr Heddle said that in the first ECG taken on 21 August 2013 there was a slight minor elevation in the ST segment and that when read together with the ECG taken later that day, the ECGs demonstrated a suspicion of ischaemia. Dr Heddle would have diagnosed a patient presenting with chest pain and those ECG changes as having acute coronary syndrome and if the serum troponins were negative (as they were) a stress ECG would have been arranged.

5.3. However, Dr Heddle was not critical of Dr Trivedy, as a general practitioner, for not perceiving these ECG changes which, Dr Heddle said, were slight.

5.4. Dr Heddle did say that he would have expected the specialist cardiologists who staffed the iCarNet service to have picked up these changes but, as I have mentioned, there was no evidence in the hospital notes or the general practitioner practice notes of any conversation between Dr Trivedy and the iCarNet specialists.

5.5. As the focus of this inquest was on the events of February and March 2016, Mr Bromage's last presentations before his death, the apparent lack of follow-up action in 2013 was not further investigated during the inquest and I cannot conclude with certainty whether further investigations were undertaken or, if not, why not.

- 5.6. There is sufficient evidence before me however, to conclude on the balance of probabilities that Mr Bromage was left medically untreated for his high cholesterol, which was identified in the lipid study and that, without the treatment with statins which he likely should have had, he remained, for that reason alone, notwithstanding his other risk factors of age and hypertension, at high risk of coronary heart disease.
- 5.7. Whilst I have not made a formal finding that Mr Bromage's cardiac investigation was not completed, it is certainly the impression given by the Mid Eyre Medical Centre notes, which is the impression Dr Parker would have gained if in February 2016 he referred to the notes of the 2013 investigations.

6. Dr Parker's professional history

- 6.1. Dr John Parker gave evidence in the inquest and was represented by counsel, Ms Cliff. Dr Parker graduated with a medical degree from the University of Queensland in 1984. He completed an intern year at Mount Isa and then five or six years in Brisbane, before working in Elliston, South Australia from 1991 until 1994. That was followed by a seventeen-year period in Brisbane again, before moving back to Elliston in 2015 and joining the Mid Eyre Medical Clinic to replace Dr Trivedy. At the time of giving evidence in 2021 Dr Parker was still working as a member of the Mid Eyre Medical Clinic and had been a Fellow of the Royal College of General Practitioners for 20 years.
- 6.2. Dr Parker gave evidence of being the only medical practitioner working at the Mid Eyre Medical Centre practice at Elliston, where he would work four days a week and be on-call for the Elliston Hospital, then another day a week at Cleve,⁸ as well as every fourth weekend at Cleve, during which he would be on-call for the hospitals at Elliston, Cowell, Kimba and Cleve.

7. September 2015 – Mr Bromage consults Dr Parker regarding a lesion on his scalp

- 7.1. The Mid Eyre Medical Centre notes disclose that in September 2015 Mr Bromage saw Dr Parker for the first time, regarding a scabbed lesion on his scalp, for which a punch biopsy was performed, and histology requested. The testing disclosed a focus of solar keratosis with no invasive tumour and dermatitis. This involved three appointments, each a week apart from the next.

⁸ 148 kilometres east of Elliston

- 7.2. Dr Parker made no reference in the notes to any further lipid profile testing or assessment of coronary heart disease risk factors, or any discussion between Dr Parker and Mr Bromage of these matters during the 2015 consultations.
- 7.3. Dr Parker did not suggest in his evidence that he turned his mind during those 2015 consultations to these other aspects of Mr Bromage's health. However, as will be mentioned later, he did prescribe Perindo Combi, a hypertension medication previously prescribed by Dr Trivedy.

8. 22 February 2016 – Mr Bromage consults Dr Parker regarding chest pain

- 8.1. On 22 February 2016 Mr Bromage attended the Mid Eyre Medical Centre and saw Dr Parker in relation to chest pain. The evidence of what happened on that occasion comprises Dr Parker's notes⁹ and his oral evidence at the inquest. The notes record the taking of some history, together with a physical examination.
- 8.2. Dr Parker gave evidence that Mr Bromage told him he had costochondritis, or Tietze syndrome,¹⁰ with which Dr Parker was not familiar, so he looked it up. As he had done with Dr Trivedy, Mr Bromage disclosed he had had a prior chest injury. He also told Dr Parker he had undergone a cardiac investigation. Undoubtedly, Mr Bromage was there referring to his 2013 attendance at the Elliston Hospital and upon Dr Trivedy. Dr Parker stated that Mr Bromage's pain was not radiating, he was nice and pink, and he was not short of breath. Dr Parker listened to his chest, which was clear, and he had two heart sounds, which was good. Mr Bromage indicated an area of the chest as sore and tender and Dr Parker examined it, finding there was tenderness on the left side around about the fourth rib, and he could reproduce the pain by pressing on it. Mr Bromage told Dr Parker he had previously had a lung biopsy, which Dr Parker said addressed a thought he had that there may have been a malignancy of the chest. Mr Bromage told him he had had a full cardiac workup. Dr Parker said he would have asked Mr Bromage about his general health but may not have noted the answers; he acknowledged that poor notetaking could be a failing of his.

⁹ Exhibit C3

¹⁰ A benign inflammation of one or more costal cartilages, first described by German surgeon Alexander Tietze

- 8.3. Dr Parker concluded that the pain was musculoskeletal and was not cardiac type pain. He said:

‘As I say, he wasn’t short of breath, he wasn’t sweaty, the pain wasn’t going anywhere, it was just right on that rib, so I was fairly convinced that that’s where the problem was, considering his history etc., etc.’¹¹

In addition, he explained, Mr Bromage told him that compared to other days, it was the same pain, which he had had many times. Dr Parker also said it looked swollen and puffy and that if these were absent, and it was not obviously tender, he would start to think of other causes.

- 8.4. Dr Parker did not conduct an ECG or troponin testing, facilities for which were readily available over the road at the Elliston Hospital.
- 8.5. Dr Parker prescribed Panadeine Forte for Mr Bromage’s pain, in addition to his usual Nexium and Perindo-Combi for his hypertension.
- 8.6. The evidence did not directly address whether Mr Bromage told Dr Parker that it was at the Elliston Hospital and the Mid Eyre Medical Clinic where he previously had a cardiac investigation. Dr Parker did not state that he asked him. If he did not ask, he should have. If Dr Parker did ask, it may be assumed that Mr Bromage would have told him it was at his clinic, and Dr Parker would have known that the notes were available to him. He would have known that they were either in the electronic record or, if they had not yet been transferred to that electronic record, in a hard copy file in another room. He should then have retrieved them. If Dr Parker had retrieved them, he would have ascertained that the evidence of Mr Bromage’s cardiac investigation conducted in 2013 did not include evidence of an exercise ECG, and that Dr Trivedy thought he may benefit from one. He would also have found that although Mr Bromage’s ECG traces were sent to iCarNet, there was no note in the records as to a response with expert advice as to interpretation. In other words, Dr Parker would have learned that Mr Bromage’s cardiac investigation appeared not to have been completed. He would also have learned that Mr Bromage was diagnosed with hypercholesterolaemia, another risk factor for acute coronary syndrome, which had been left untreated, in addition to his age and his hypertension, of which Dr Parker plainly knew.

¹¹ Transcript, page 194

- 8.7. Under questioning by counsel assisting, Mr Kalali, Dr Parker conceded that he knew that chest pain might be underpinned by life-threatening conditions such as acute coronary syndrome, pulmonary embolism, aortic dissection and spontaneous pneumothorax, chronic conditions such as stable angina, aortic stenosis, aortic aneurysm, or lung cancer. He also accepted that acute conditions such as pericarditis, pneumonia and reflux were, along with all the other conditions just mentioned in this paragraph, more serious than musculoskeletal issues.
- 8.8. Dr Parker also accepted and agreed that some patients with acute coronary syndrome do not present with the classic symptoms of chest pain, severe crushing pain, radiating to the jaw or the arms. He agreed that some patients with acute coronary syndrome may have it silently and painlessly and, in those circumstances, it was very hard to pick without some symptom leading in that direction.¹² Dr Parker agreed that you could not rely on a clinical examination or the history alone to make a diagnosis of acute coronary syndrome, and investigations, starting with an ECG, were required to do so.
- 8.9. Mr Kalali put to Dr Parker that when you have a patient presenting with chest pain, the rule is to first exclude potentially life-threatening causes. Dr Parker's response was that you exclude that if there is no obvious cause, citing as examples chest pain following running into a fence, or costochondritis. Dr Parker went on:
- ‘... and the thing with this patient, because I know where you're going with this, with this patient is he had a focal tender area, not just saying, “I've got these pains” that's a different thing, “I've got a pain right here, it really hurts, you press it, and it hurts”. So that's what pointed me away from it, he's got a clear history of chest trauma, you know, I've treated a number of people with acute coronary syndrome and arrhythmias and aneurysms and all that sort of stuff, he just did not fit the picture, unfortunately.’¹³
- 8.10. Mr Kalali then put to Dr Parker that Mr Bromage's presentation, at the time, required an ECG. At this stage of his evidence, Dr Parker was prepared to accept that this was probably correct, but with the benefit of hindsight; he was not prepared to accept that, presented with the symptoms and information with which he was, at that time he ought to have conducted ECG and troponin testing to exclude acute coronary syndrome.
- 8.11. Extensive questioning by counsel assisting followed. Dr Parker eventually conceded that, in light of information he knew of, namely that Mr Bromage was 72 years of age and suffering hypertension, putting him in the category of a high-risk patient, he should

¹² Transcript, page 213

¹³ Transcript, page 214

when he presented with chest pain have conducted a cardiac investigation. By his concession he acknowledged that he was influenced, in not doing so, by his view that Mr Bromage's chest pain was characteristic of costochondritis, together with information about the earlier crush injury, and his acceptance of the information provided by Mr Bromage that he had been previously fully worked up for cardiac issues.¹⁴

- 8.12. This was effectively a concession by Dr Parker that he was prepared to back his clinical judgment about the cause of the chest pain, in the face of a known risk that if he were wrong the consequences for his patient, Mr Bromage, could be serious and possibly fatal. And this was despite the ready availability of straightforward tests to exclude the serious condition.

9. Did Dr Parker access Mr Bromage's 2013 notes and lipid study results?

- 9.1. It was not clear from the evidence whether Dr Trivedy's handwritten notes of the 21 August 2013 cardiac investigation had been incorporated into the electronic records of the Mid Eyre Medical Centre by the time Dr Parker saw Mr Bromage in 2015 or were still stored separately as paper records.
- 9.2. Dr Parker gave evidence that he did not, in September 2015 (or on any occasion in 2016) access the handwritten notes which provided detail of the 2013 cardiac investigation.¹⁵ I accept his evidence in this regard.
- 9.3. Dr Parker could not say with certainty whether he saw the 2013 lipid study results, showing Mr Bromage's hypercholesterolaemia. However, Dr Parker's evidence was that a person with high cholesterol, as indicated in the 2013 lipid study, would need to be on medication, probably statins.¹⁶ Dr Parker did not prescribe statins for Mr Bromage. I therefore consider it likely that neither in 2015, nor in 2016 did Dr Parker access Dr Trivedy's 2013 notes to find the lipid study, which would have revealed to him Mr Bromage's untreated condition of hypercholesterolaemia.
- 9.4. However, Dr Trivedy's electronic notes of the 26 August 2013 consultation, which Dr Parker should have read, recorded brief details of the reason for the consultation as '*hypertension, gastro-oesophageal reflux disease and pain*' and the actions taken,

¹⁴ Transcript, page 249

¹⁵ Transcript, page 216

¹⁶ Transcript, page 217

namely prescription of medications for those two conditions and Panadeine Forte, as well as a request for fasting lipid tests.

9.5. It is also clear that if Dr Trivedy's handwritten notes and the results of the 2013 lipid study had not by then been transferred to the electronic system they were nevertheless kept on the premises and available to Dr Parker in hard copy if Dr Parker had asked his staff to retrieve them.

9.6. If, in February 2016, Dr Parker had accessed the 2013 handwritten notes, he would have properly informed himself of Mr Bromage's relevant medical history.

10. Dr Heddle's opinion in relation to the 22 February 2016 consultation

10.1. Dr Heddle first noted in his expert report that Mr Bromage's chest pain with hypertension and hypercholesterolaemia put him at a high risk for coronary artery disease. He felt that the management of the earlier 2013 presentation was satisfactory, provided Mr Bromage had a stress ECG, but there was no information in the notes as to whether he had this. As I have stated, the absence of mention of such testing in the notes suggests that it did not occur.

10.2. Dr Heddle described the three major correctable risk factors for coronary artery disease, namely increased cholesterol, high blood pressure and smoking. Added to that is the uncorrectable factor, namely age, which presents a higher risk from the age of 65, increasing as the age increases.

10.3. Dr Heddle described typical symptoms of chest discomfort ranging from angina, which patients often say is an uncomfortable pressure feeling in the chest, to pain in the setting of a myocardial infarction, where there has been substantive heart muscle damage because of occlusion of a heart artery, which is often described as 'crushing' chest pain. Stable angina is recurrent chest discomfort, usually with exertion, which comes on predictably with a reasonable amount of exertion and is relieved by rest, with this pattern remaining the same over a prolonged period. Unstable angina is new onset of angina or an increase in the frequency and severity, with symptoms coming on at rest or with minimum exertion, rather than with moderate exertion.

10.4. Dr Heddle then referred to the '*many, many patients*' who present with unusual or quite bizarre symptoms, such that it would not be immediately apparent that they have

coronary artery disease. This he stated is the reason it is recommended that when people present with chest pain, clinicians must think of the worst possible diagnosis first (acute coronary syndrome) and exclude it before thinking of a more likely common diagnosis of chest wall pain.¹⁷

- 10.5. Explaining his point about unusual or bizarre symptoms, Dr Heddle later referred to the complicating factor in Mr Bromage's case, namely that Mr Bromage presented with a localised tender area in his chest wall to which he attributed the chest pain. Dr Heddle explained that the brain has a complex system of sorting out pain, due to which it summates pain from different areas. He gave examples: a person with a tennis elbow may present with an acute coronary syndrome saying, '*My tennis elbow is much worse today*' and a person with a sore tooth presenting with acute coronary syndrome might say '*My tooth is hurting a lot today.*' Applying these examples to Mr Bromage, Dr Heddle explained that a person with recurring costochondritis who also has an acute coronary syndrome might present with worse apparent costochondritis pain because the brain adds to that the pain impulses from different areas. This is why, concluded Dr Heddle, in the case of chest pain, testing is required to exclude an acute coronary syndrome even if the presentation suggests some other cause.¹⁸
- 10.6. Dr Heddle expressed the opinion that with Mr Bromage's risk factors, such as were apparently known by Dr Parker (age and hypertension), it would be appropriate that Mr Bromage, upon presentation on 22 February 2016 with chest pain, should have had serial ECGs and troponin tests, namely an assessment to exclude a cardiac cause, the most serious possible condition.¹⁹ Dr Heddle's reasons why Dr Parker should have done this, even if he felt the pain was consistent with costochondritis, have been set out in the previous two paragraphs.
- 10.7. Dr Heddle also stated that where a person presents with symptoms and acute coronary syndrome is then excluded (by serial ECG and troponin testing), but the person has cardiovascular risk factors, non-invasive assessment should be undertaken to see if they actually have coronary disease as well, so regardless of whether it is thought that the symptoms are due to heart disease, if there are strong cardiac risk factors it is

¹⁷ Transcript, page 331

¹⁸ Transcript, page 351

¹⁹ Transcript, page 350

appropriate to do either a stress test or CT coronary angiogram to assess whether they have coronary atherosclerosis.²⁰

- 10.8. I accept Dr Heddle's opinions and the reasons expressed. I find, as conceded by Dr Parker, that he ought to have conducted a cardiac investigation upon Mr Bromage, which would have included at the very minimum, serial ECG and troponin testing. It was an error for him not to have done so. As a result of this omission, Dr Parker's diagnosis and treatment of Mr Bromage on 22 February 2016 were wrong and inappropriate.
- 10.9. Had ECG and troponin tests been undertaken, the likely outcome according to Dr Heddle, would have been that either the troponin or the ECG (or both) would have been abnormal, in which case Mr Bromage would have required urgent referral for further investigation for an acute coronary syndrome, in which case a tight stenosis,²¹ rather than an occlusion of his left anterior descending artery²² may well have been found and corrected.
- 10.10. Referral for this treatment would have been by telephone to the iCCnet,²³ who would work out an appropriate plan of action, likely to have been transfer by air the next working day to a major hospital and then to have coronary angiography.
- 10.11. I accept Dr Heddle's opinion that in that event Mr Bromage's chances of survival would have been good, although not 100%.

11. 25 February 2016 – Mr Bromage telephones Dr Parker regarding ongoing chest pain

- 11.1. Dr Parker's next contact with Mr Bromage occurred on Thursday, 25 February 2016. Dr Parker gave evidence about this occasion and referred to his practice notes,²⁴ in which he made a record commencing at 9:17am. Dr Parker said he was working at Cleve and was on-call. He gave evidence that he spoke with Mr Bromage who was a bit confused about how to take his medication. He said he had taken Codapane which had worked well. Dr Parker thought that if the pain were anything other than joint pain, Codapane would not have assisted. He asked Mr Bromage to present at the Elliston

²⁰ Transcript, page 352

²¹ Narrowing

²² As was later found, after he became critically ill

²³ Integrated Cardiovascular Clinical Support Network - Country Health SA

²⁴ Exhibit C3, page 2

Hospital for examination by Registered Nurse Jessica Donovan, who Dr Parker knew was on duty.

12. Mr Bromage attends the Elliston Hospital

- 12.1. Ms Jessica Donovan was on duty at the Elliston Hospital where she had worked as a registered nurse since January 2012. As usual, an enrolled nurse was on duty with her. Ms Donovan had worked as a registered nurse since completing her Bachelor of Nursing degree in 1998.
- 12.2. The Elliston Hospital is a public hospital, operated by the Eyre and Far North Local Health Network, with fifteen aged care beds, four acute beds and a palliative care area, as well as outpatients and accident and emergency. There was and is always a doctor on-call – a doctor from the Mid Eyre Medical Clinic – and on this occasion it was Dr Parker. The effect of this model is that the nursing staff essentially run the hospital service and seek and rely on the advice and support of on-call medical officers when a patient presents to the hospital. The advice provided by the on-call medical officer directs the treatment and care undertaken by the nursing staff.
- 12.3. In giving evidence, Ms Donovan was able to refer to Mr Bromage’s Elliston Hospital case notes²⁵ and her personal detailed notes of events.²⁶
- 12.4. Ms Donovan stated that Dr Parker telephoned her on 25 February 2016 to say there was a man coming from Venus Bay whom he had spoken to that morning. Dr Parker said the patient was concerned about medication management, that his prescribed Panadeine Forte was not working, but Codapane tablets were working. Ms Donovan asked Dr Parker if it were a ‘*chest pain*’ case coming in because she ‘*would need to get organised*’. By this she meant she would have to apply the chest pain protocol and conduct serial ECG and troponin testing. Dr Parker said, ‘*No, no, I’ve seen this bloke two days ago in the surgery, he’s been fully investigated, it’s Tietze syndrome*’. She said that Dr Parker wanted her to check out what was going on with the patient’s medication and that he did not say to do an ECG.
- 12.5. Ms Donovan looked up Tietze syndrome on the internet and learnt it was an inflammation between the ribs and that the pain can be quite severe.

²⁵ Exhibit C4

²⁶ Exhibit C7

- 12.6. Mr Bromage arrived at 11:10am in the company of another man. He explained to Ms Donovan that the Panadeine Forte prescribed by Dr Parker was not working but that (the brand) Codapane was working. Ms Donovan ascertained the ingredients of the two medications he had with him, each having 500mg of paracetamol, and the Codapane having 8mg of codeine phosphate instead of the 30mg in the Panadeine Forte. Also, Mr Bromage said he was only taking one of the tablets at a time, not seeming to understand exactly the dosage which had been prescribed. He told the nurse of his chest pain in the left anterior chest just immediately to the left of the sternum which was more uncomfortable upon taking deep breaths. She obtained from Mr Bromage a detailed account of his symptoms and the medications he had been taking. She found upon examination that Mr Bromage's chest was sore to touch. Mr Bromage told her there was nothing new since seeing Dr Parker three days earlier.
- 12.7. Within 10 minutes of Mr Bromage arriving, Ms Donovan received another call from Dr Parker, to whom she explained what Mr Bromage had told her and what she had so far found upon examination. In particular, she explained to Dr Parker that Mr Bromage said that he had taken Panadeine Forte, one tablet not two, and felt it did not work and his mate told him to try Codapane, which he did, and it worked. Dr Parker told Ms Donovan to tell Mr Bromage to take the Panadeine Forte as directed on the packet. Ms Donovan told Dr Parker that she had not done an ECG yet and Dr Parker said, *'Don't worry about it.'*
- 12.8. During her discussion with Dr Parker, Ms Donovan was mindful of the iCCnet CHSA Management of Chest Pain/Suspected Acute Coronary Syndrome Protocol, a large copy of which was on the hospital wall²⁷ which required her to initiate ECG and troponin testing, upon the assumption that she understood it that any chest pain is to be regarded as cardiac related until proven otherwise. When she described Mr Bromage's symptoms and her findings upon examination, Dr Parker concluded they were exactly as they were when he examined him three days earlier. Here there was a misunderstanding: Ms Donovan understood Dr Parker to be saying that he had undertaken a full cardiac investigation two days previously. Despite this misunderstanding, she correctly understood Dr Parker to be saying that a cardiac investigation had been conducted (albeit at some other time), that he was satisfied that his earlier diagnosis of Tietze syndrome was correct, and that he was instructing her not

²⁷ Exhibit C7a

to activate the chest pain protocol and conduct ECG and troponin testing. Ms Donovan's understanding was that the '*chest pain protocol must be completed unless a non-cardiac cause of symptoms is established*' and from her perspective, the instruction Dr Parker gave to her was that this non-cardiac cause of symptoms was established. She said that, but for Dr Parker telling her not to, she would have undertaken ECG and troponin testing, in accordance with the protocol.

- 12.9. Documents were faxed to Dr Parker to enable him to prescribe further Panadeine Forte. Mr Bromage left the Elliston Hospital that day with a prescription for Panadeine Forte and a plain language information sheet about its use. Ms Donovan gave Mr Bromage verbal information about the common symptoms or side-effects of taking narcotic medication, namely constipation. She advised him to go to the pharmacy and get some gentle laxatives and seek medical attention if this did not work. She also provided him with a heat pack and instructions on how to use it on his chest. Finally, she made an appointment for Mr Bromage to see Dr Parker on 1 March 2016. Mr Bromage left the Elliston Hospital at about midday.
- 12.10. Dr Parker's recollection about the conversations of 25 February 2016 were not as detailed as Ms Donovan's. This is not a criticism; Ms Donovan made quite detailed nursing notes and, within a month, more detailed notes for her personal use, in circumstances where she had been thinking about those events since they occurred. There was no controversy about what she said. Dr Parker's recollection was not inconsistent, and he readily accepted Ms Donovan's account of events. He made plain that he thought very highly of Ms Donovan and her nursing skills, having worked closely with her since his arrival at Elliston in 2013. He described her as an exceptional nurse.
- 12.11. Dr Parker said that when he referred Mr Bromage to the Elliston Hospital, he was still thinking that Mr Bromage was suffering musculoskeletal pain, influenced by Mr Bromage's report to him that Codapane was effective, although he was bemused by the fact that Codapane, the weaker medication, was working whereas the Panadeine Forte was not. Once Ms Donovan told him of the results of her examination, he was influenced by the similarity of the site and nature of the pain, together with what he had previously (wrongly, without checking the records²⁸) accepted about Mr Bromage

²⁸ My observation and conclusion

having had a full cardiac assessment. He again diagnosed costochondritis. He thought what was required was getting Mr Bromage's medications right, to get rid of the costal cartilage pain. He agreed that he told Ms Donovan that an ECG was not required. He also agreed that he would have expected her to accept his judgment in that regard.

13. Dr Heddle's opinion as to the 25 February 2016 telephone consultation and hospital treatment

- 13.1. Dr Heddle's criticism of the failure to undertake ECG and troponin testing in accordance with the chest pain protocol applies to 25 February 2016 in the same way as to 22 February 2016, for all the same reasons as previously discussed.
- 13.2. I also refer to Dr Parker's concession, having regard to those of Mr Bromage's risk factors which were known to him, namely his 72 years of age and his hypertension, that it was appropriate, as the situation presented to him at the time – not just with the benefit of hindsight – for him to have ordered a cardiac investigation to be undertaken. This irresistible concession would have been rendered even more so if Dr Parker were aware, as he should have been, of Mr Bromage's untreated hypercholesterolaemia, and that a previous cardiac investigation at the Mid Eyre Medical Centre had not been completed.
- 13.3. I accept Dr Heddle's opinion that the appropriate response to Mr Bromage's presentation was to undertake ECG and troponin testing to exclude acute coronary syndrome, and that it was inappropriate for Dr Parker to have concluded that the cause of the pain was costochondritis without undertaking such testing.
- 13.4. Dr Heddle regarded Mr Bromage's chances of survival to be good, although not 100%, if transferred to a major hospital for coronary angiography. I accept Dr Heddle's opinion.
- 13.5. Dr Heddle also reiterated the point that, although the features of Mr Bromage's clinical signs and features of the pain pointed to a likely diagnosis of costochondritis, nevertheless because acute coronary syndromes can mask as other symptoms it must always be considered, particularly in a patient with a high-risk profile. Dr Heddle pointed out that when a patient's pain presents as localised pain, it is still necessary to exclude acute coronary syndrome, just requiring two ECGs and two troponin tests. Dr Heddle pointed out that such testing is not a big demand on the service, which was perfectly capable of doing those tests.

- 13.6. No criticism is to be made of Registered Nurse Donovan who, in not undertaking ECG and troponin testing, was following the instructions of Dr Parker. The care and treatment provided by Ms Donovan was appropriate, in the sense that she was subject to and complied with Dr Parker's instruction.

14. Mr Bromage's presentation to the Elliston Hospital on 1 March 2016

- 14.1. On 1 March 2016 at 11:40am Mr Bromage again attended the Elliston Hospital. There is no record of any attendance beforehand or contact with Dr Parker's GP practice. Registered Nurse Donovan again triaged him. The hospital notes made by her indicate on presentation he complained of not eating, feeling not nauseous but as if he were unable to get food down, feeling as if food wants to come up. He reported a constant achy feeling in his stomach, not cramping, and having eaten minimally in the previous seven days. He was found to have a fever of 38.2°C.
- 14.2. Mr Bromage's admission proceeded quickly, and he was soon afterwards examined by Dr Parker. He considered that Mr Bromage was dehydrated and had an infection causing the fever, noting on examination that his abdomen was soft. Dr Parker ordered a chest X-ray and gave instructions for the commencement of intravenous antibiotics, which was noted as commencing at 12:25pm. There was no complaint of chest pain and Dr Parker concluded that Mr Bromage's recent Tietze syndrome exacerbation had now resolved. Dr Parker did not consider a cardiac cause for any of his symptoms and no ECG or troponin testing was undertaken.
- 14.3. Dr Parker described his reasoning for regarding Mr Bromage's symptoms as indicative of a different problem to those with which he had presented on the previous two occasions. He considered that Mr Bromage's high temperature may have been due to an infection; that as an elderly man he was prone to prostate issues and therefore urinary tract issues, and chest issues (leading to susceptibility to infection); that as a result of the costochondritis, Mr Bromage probably would not have been breathing up properly and therefore under-ventilating the bottom part of his lung. Dr Parker was therefore concerned that he had an infection in the lung, or he had a problem with his stomach.²⁹ Dr Parker went on to say that it did not appear to him that Mr Bromage had congestive heart failure as he did not appear to have any sort of swelling and his chest X-ray did not really bear that out. He was asked about evidence of build-up of fluid, that is

²⁹ Transcript, page 262

congestion, in the intestines and the gut area and the liver area, as indicative of congestive heart failure, but he considered Mr Bromage was not suffering that sort of congestion because he would then have had very marked lower limb swelling, starting in his ankles and working its way up, which he did not have. Dr Parker agreed that a build-up of fluid around the liver and the gut would cause a loss of appetite, but he put down Mr Bromage's loss of appetite as probably due to not taking his esomeprazole³⁰ properly, allowing reflux pain and the development of gastritis, which reduces appetite. Dr Parker also took into account that Mr Bromage's abdomen was quite soft and non-tender, which he described as a good sign, with no apparent fluid or masses, his chest sounded clear, he had two heart sounds, and it was in sinus rhythm, although a little bit rapid, which he regarded as in keeping with dehydration.

- 14.4. By way of treatment, Mr Bromage was placed on an intravenous saline drip, a test of electrolytes was satisfactory apart from the presence of ketones consistent with not having eaten and he was given Maxolon for his nausea. A chest X-ray was performed, showing that the heart was not enlarged but the lungs were mildly hyperinflated with left basal atelectasis and indications of the presence of fluid. Again, Dr Parker took these findings to be consistent with the presence of infection. Mr Bromage was observed throughout the day and during the evening as he slept intermittently. Nursing observations were to be undertaken every four hours. When he was not sleeping, he was eating, drinking, walking and talking. At 9:10pm there was a call from his daughter but at the time Mr Bromage was observed to be sleeping soundly and was not disturbed.
- 14.5. At about 10:30pm, Mr Bromage was found unresponsive in his bed when nurses attended to undertake routine observations. I shall elaborate later what then occurred, but for the moment I shall record that an ECG taken later demonstrated an anterior myocardial infarction and this was confirmed by elevated troponin. At 5am the following day, 2 March 2016 Mr Bromage was transported by MedSTAR to the Royal Adelaide Hospital. A CT of the brain showed established posterior cerebral artery infarction and an emergency coronary angiogram showed triple vessel disease which included 100% occlusion of the left anterior descending coronary artery and severe left ventricular dysfunction with an ejection fraction of 20%. Mr Bromage's neurological

³⁰ Previously in this finding referred to by the band name Nexium – for reduction of stomach acid

state did not improve, and he did not regain consciousness. After discussion with his family, he was provided with comfort care until he died on 4 March 2016 at 10:25pm.

15. Dr Heddle's opinion as to the cause of Mr Bromage's symptoms on 1 March 2016

- 15.1. Dr Heddle's opinion as to Mr Bromage's condition at the time of his admission on the morning of 1 March 2016 explains Mr Bromage being found unresponsive later that evening and what then occurred.
- 15.2. Dr Heddle expressed the opinion that the treatment provided to Mr Bromage upon admission to address his dehydration was appropriate, considered in isolation. However, Dr Heddle explained that the fever warranted investigation to exclude that it was a fever secondary to myocardial infarction and ensuing complications, particularly so in the light of Mr Bromage's presentations with chest pain the previous week.
- 15.3. On its own, said Dr Heddle, the symptoms of dehydration, loss of appetite and fever would probably not have justified a cardiac investigation by ECG and troponin testing, but taken together with the history of complaints of chest pain on 22 and 25 February 2016, presenting five days later with symptoms of dehydration, loss of appetite and fever, did warrant a cardiac investigation.
- 15.4. The underlying explanation given for this is that if there is tissue breakdown in the body as a result of a breakdown of cells, including by damage to the heart muscle, substances are released which generate a fever. Loss of appetite, too, can be a consequence of heart failure and reduced cardiac output in somebody who has had a heart attack with complications. The mechanism is that if the heart is not pumping properly, there occurs a backup of fluid in the lungs and in the abdomen and the backup in the abdomen leads to congestion of the stomach and organs and people go off their food. Dr Heddle stated this is commonly seen in patients with advanced heart failure.
- 15.5. Dr Heddle described these symptoms, presenting in the case of a man with a myocardial infarction of several days' duration, as being very unusual in modern medical practice, because of the widespread implementation of chest pain protocols leading to early identification, by ECG and troponin testing, of acute coronary syndromes, which are now managed very promptly and do not lead to substantial heart damage. He said that in the 1970s and early 1980s patients with heart attacks were not re-perfused³¹ and most

³¹ Restoration of blood flow to the heart

of them with any substantial heart attack would have a fever lasting three or four days and would have other complications including heart failure and arrhythmias. The fact that most people with heart attacks (or acute coronary syndromes) are now managed very promptly and do not have any substantial damage, means that modern medical practitioners commonly do not recognise fever as being a complication of myocardial infarction because they do not experience it. Nevertheless, once there is a lot of damage of heart muscle, one of the complications is fever as a consequence of the tissue damage. Loss of appetite can also be a consequence of heart failure and reduced cardiac output.

- 15.6. Although there was not an ECG done at the Elliston Hospital upon admission, Dr Heddle viewed the ECGs taken later, after Mr Bromage became unresponsive, which revealed an extensive anterior myocardial infarction occurring for some days and was consistent with a very severely damaged heart.
- 15.7. In Dr Heddle's opinion, by the time of his admission on 1 March 2016, Mr Bromage's prognosis was already extremely poor due to the extent of the heart damage from his myocardial infarction. I accept Dr Heddle's evidence that at the time of his admission on 1 March 2016, Mr Bromage's chance of survival was only about 10%, and that by late evening when he became unresponsive, it was probably 5%.
- 15.8. I also accept Dr Heddle's evidence that if, on the other hand, a cardiac investigation had been carried out on 22 and 25 February 2016, which would have led to transfer on either date to Adelaide for specialist cardiac intervention, his chances of survival at that stage of his myocardial infarction were good, probably in the order of 70% to 80%.

16. Mr Bromage found unresponsive and events thereafter

- 16.1. On the night of 1 March 2016, Registered Nurse Jenith Calderwood was on nightshift duty with Enrolled Nurse Lesley Westwood. Ms Calderwood qualified with a Bachelor of Nursing degree in 2008 and has worked for the Eyre and Far North Health Network at the Elliston Hospital since 2009. She gave evidence at the inquest.
- 16.2. The night shift commenced at 9pm with a proper handover. Ms Calderwood was told that Mr Bromage had been up and about, eating and drinking at suppertime, approximately 8:15pm. Mr Bromage was found unresponsive at 10:30pm when the nurses attended his bedside to undertake routine observations.

- 16.3. When Mr Bromage was found unresponsive, Ms Calderwood immediately arranged for Registered Nurse Merle Weetra, who was off duty, to come into the hospital to provide extra assistance in the urgent tasks of making assessments and attempting to stabilise Mr Bromage. Ms Weetra arrived 15 minutes after Mr Bromage was found unresponsive. She gave evidence at the inquest. She graduated with a Bachelor of Nursing in 2009 and has a Graduate Certificate in Emergency Nursing gained in 2020. She is the acting Acute Care Nurse Unit Manager at the Elliston Hospital. She arrived 15 minutes after Mr Bromage was found unresponsive. During her evidence, Ms Weetra referred to a detailed account of events³² which she prepared on 3 March 2016, in conjunction with Ms Calderwood.
- 16.4. Mr Bromage was plainly extremely ill. There was irregular posturing of his limbs and diaphoresis. His Glasgow coma score (GCS) was low, at 6, indicating that he was suffering some sort of neurological deficit. He was only mildly responding to painful stimuli. His respiration rate was 28 and laboured. His pupils were non-reactive and exhibiting different sizes. His pulse was regular at 90 beats per minute. His blood pressure was $120/70$ and his temperature 38.5°C .
- 16.5. The nurses were extremely worried by the GCS score and its indication that Mr Bromage's neurological status was threatened, following which they knew a cascade of events can quite easily occur, including respiratory arrest and cardiac arrest. They regarded the situation as a medical emergency which could not be dealt with definitively at a small site.³³
- 16.6. The on-call after-hours doctor was Dr Richard Jolly, who was living at Cowell, about 200 kilometres from Elliston and who, during semi-retirement, was undertaking some locum work. Dr Jolly gave evidence at the inquest and was represented by counsel, Ms Kereru. He had been a medical practitioner for about 45 years, the majority as a country general practitioner in Ceduna and Kimba on the Eyre Peninsula in country South Australia. He was engaged by the Mid Eyre Medical Centre on a part-time, as-needed basis to provide an on-call after-hours telephone service for the hospitals at Elliston, Kimba and Cleve. In his experience of doing this, night-time calls were not common; he doubted if they occurred even once a month. He was available to attend in person in the event of an extreme crisis, subject to the obvious barrier of distance and

³² Exhibit C8a

³³ Transcript, page 161

the time that distance would take to travel. He did not as far as he knew have telemedicine facilities available to him. If there were such facilities at the nearby Cowell Hospital, he was not aware of them. He said he was not trained in the use of telemedicine and was not expected by his employer to provide a telemedicine service during his rostered after-hours on-call duty.

- 16.7. At 10:50pm, Ms Calderwood telephoned Dr Jolly. She gave evidence of the conversation. Dr Jolly, in his evidence, entirely accepted Ms Calderwood's account of the conversation. He had not been asked, until shortly before the inquest, to recall the events of that night and I accept his evidence that he had no recollection of the conversation.
- 16.8. At the time she called Dr Jolly, Ms Calderwood and the other nurses felt that they needed to escalate Mr Bromage's care to a tertiary hospital, requiring an emergency flight by MedSTAR.³⁴ She gave Dr Jolly all the details of Mr Bromage's condition, including the observations which I have described. She advised him that she felt that his care needed escalation to a tertiary hospital, and he needed to be flown out. In response, Dr Jolly told her he did not think it was necessary. He prescribed the administration of two bags of potassium fluid over four hours each and to give the patient some 'TLC'. He said that he did not think that the patient would 'make the flight'. During the conversation she informed Dr Jolly that Mr Bromage's GCS had reduced further to 3. Ms Calderwood asked Dr Jolly to speak to the nurses via video conference and he said that he could not do that. Dr Jolly told her that there was nothing else he could do, as he was 200 kilometres away. Ms Calderwood told Dr Jolly that she would discuss it with the other nurses and would call him back.
- 16.9. To Ms Calderwood and the other nurses, it did not seem appropriate that they would be watching Mr Bromage all night and only giving him, by way of treatment, potassium fluid and 'tender loving care'. They were distressed about what they perceived as a lack of assistance from the on-call doctor. They decided to call MedSTAR.
- 16.10. Five minutes later, Ms Calderwood rang Dr Jolly and said that they would be calling MedSTAR for advice and support. Dr Jolly agreed to this course of action. The nurses set about administering the potassium as instructed. This was difficult and time-consuming due to the irregular posturing of Mr Bromage's limbs, and he was

³⁴ South Australian Ambulance Service (SAAS) MedSTAR Emergency Medical Retrieval Services

dislodging his intravenous access lines. At one stage Dr Jolly rang back and asked them to insert a catheter, which they did.

16.11. At 11:39pm Ms Calderwood telephoned MedSTAR and a video conference was established with the on duty MedSTAR emergency consultant and other clinicians, which video conference was then maintained for the duration of the emergency. Thus, the MedSTAR staff were able to see the patient and advise and instruct the nurses as to what to do. The nurses were instructed to cease the potassium infusion and they also undertook troponin³⁵ and i-STAT³⁶ testing as instructed. At 12:30am they inserted a nasopharyngeal airway with MedSTAR advice and assistance. Mr Bromage stopped breathing seven times and instructions were given as to positioning him and applying a bag and mask on the occasions when his breathing did not recommence spontaneously. In the meantime, a MedSTAR flight was arranged, and a retrieval doctor and nurse arrived at the hospital at 3:57am, whereupon Mr Bromage was transported to the Royal Adelaide Hospital.

16.12. I commend the nurses who were on duty on the night of Mr Bromage's collapse for their hard work in maintaining Mr Bromage's airway and resuscitating him as required until he was transferred into the care of MedSTAR staff.

17. Concerns expressed by the Elliston Hospital nurses about on-call medical support

17.1. Nurses Calderwood and Weetra lodged a complaint on the Safety Learning System (SLS) Portal, due to their concerns about what they perceived as inadequate support from the on-call medical officer during a traumatic and dangerous situation for their patient. A copy of the SLS incident investigation and review form, including the outcome of the review, was received in evidence.³⁷ A suggestion of corrective action was the removal of Dr Jolly from the on-call roster for Mid Eyre Medical. The 'Investigation Outcome' was recorded as:

'Off-site on-call medical officer did not utilise facilities available to full potential – video conferencing should have been utilised in this case. Staff required to call MedSTAR for advice and guidance which worked well, but more involvement from on-call GP would have been expected by our organisation.'

³⁵ 1204 ug/L

³⁶ Handheld bedside blood testing with single-use cartridges

³⁷ Exhibit C8

18. Dr Jolly's evidence

- 18.1. Dr Jolly gave evidence by telephone from his home in Queensland. He fully retired shortly after this incident. I have mentioned his background and the circumstances of his engagement to be on duty that night. He was an honest and forthright witness who readily made appropriate concessions.
- 18.2. I have said that I accept Dr Jolly's evidence that he had no recollection of the calls that night. This is understandable, in my view, given that it was not brought to his attention after the event that there was any issue about his conduct, and he was not asked until just before the inquest to recall it. He was also unaware that a complaint was lodged on the Safety Learning System Portal by Nurses Calderwood and Weetra. He had not been asked, in the conduct of the review, to provide his account of what occurred. Neither was he told of the decision to remove him from the on-call roster.
- 18.3. Dr Jolly unhesitatingly accepted the evidence given by the nurses about the exchanges between them. In my opinion Dr Jolly did his best to assist the Court in understanding his responses, insofar as he was able, bearing in mind he could not remember the matter. When he was presented during his evidence with details of what he was told of Mr Bromage's condition during the first call, he said it is likely that he thought Mr Bromage was exceedingly unwell and was getting worse.³⁸ He stated it was likely he thought that Mr Bromage would not have made (or survived) the flight to Adelaide, when retrieval was suggested to him by Ms Calderwood. Dr Jolly conceded:

‘I think I can probably appreciate now that the nurses were much more distressed by the whole situation than I appreciated at the time.’³⁹

He took no issue with the evidence that he told Ms Calderwood to provide Mr Bromage with ‘TLC’ and he explained that by that he would have meant normal nursing care; protecting him and generally looking after him.⁴⁰ He pointed to calling back and asking for a catheter to be inserted as suggesting he had thought in his mind there may have been some benefit in continuing to work on Mr Bromage.⁴¹ He accepted, based on the accounts of Ms Weetra and Ms Calderwood, that there was more that he could have

³⁸ Transcript, page 289

³⁹ Transcript, page 290

⁴⁰ Transcript, page 292

⁴¹ Transcript, pages 311-312

done during the phone contact with Ms Calderwood to support those nurses who were dealing with Mr Bromage.

- 18.4. Dr Jolly was asked about MedSTAR involvement and unhesitatingly acknowledged MedSTAR's extreme proficiency in transporting critically ill patients and providing the highest level of care in the process.
- 18.5. I observe that within five minutes of the first phone call to Dr Jolly, the nursing staff made the decision to engage MedSTAR and notified Dr Jolly of this decision, with which he agreed. From that time Dr Jolly was entitled to think that nursing staff were engaging the gold standard for emergency care support of Mr Bromage.
- 18.6. Dr Jolly told the Court that he was embarrassed he was not able to be of more assistance when asked to explain his thinking on the night.
- 18.7. Dr Jolly stated in evidence that he had not been required by his employer to undertake, neither was he offered, any training in video conferencing but that he would have been open to such a suggestion.

19. Dr Heddle's evidence as to Dr Jolly's involvement and whether his acts or omissions contributed to Mr Bromage's death

- 19.1. Dr Jolly's involvement on the evening of 1 March 2016 was not mentioned in Dr Heddle's expert report.⁴² Dr Heddle gave evidence that he knew Dr Jolly professionally and considered him to be a very competent general practitioner.
- 19.2. Dr Heddle made it clear in his oral evidence that the opportunity for intervention to have prevented Mr Bromage's death was on 22 and 25 February 2016 and that 'the horse had bolted, the chance of him having a meaningful recovery was minimal by the time he presented on 1 March 2016'.⁴³ Accordingly, Dr Heddle considered the brief involvement by Dr Jolly in Mr Bromage's emergency care to have been of little consequence to the overall outcome. He said that based on the information provided to Dr Jolly about Mr Bromage's condition at 10:50pm it was reasonable for him to have considered that Mr Bromage would not survive the retrieval flight to Adelaide, his prognosis being extremely poor at this stage. Dr Heddle had no criticism, having regard

⁴² Exhibit C11b

⁴³ Transcript, page 383

to what Dr Jolly was told, of Dr Jolly's instructions to administer potassium and insert an indwelling catheter.

20. Video conferencing facilities and training for on-call after-hours doctors servicing country hospitals

20.1. I make the comment that providers of on-call medical services to hospitals in South Australia should require employed on-call doctors to have video conferencing facilities available to them and be competent in their operation. If Dr Jolly were trained in the use of video conferencing facilities, which would have been available to him nearby at the Cowell Hospital, such training was not effective.

20.2. Since the conclusion of the evidence in the inquest I have been advised that, with a view to ensuring that all on-call after-hours doctors have immediate access to video conferencing facilities, the Eyre and Far North Local Health Network commenced a trial, with a view to evaluation and then full rollout across the region, of a Mobile Clinician Kit, in the use of which on-call doctors are trained. This kit includes the necessary equipment for on-call after-hours doctors to connect by video directly with the various country hospitals from any location, including their homes.

21. Escalation to MedSTAR at the initiative of hospital clinicians

21.1. In about 2018 a new policy was introduced at the Elliston Hospital for the assistance of nursing staff, entitled Guidelines for contacting Medical Officers of Mid Eyre Medical from Elliston Hospital.⁴⁴ Different guidelines attached to different categories of patient as classified pursuant to the Australian Triage Scale. If the patient is in category ATS1 (immediately life-threatening), nurses are instructed to call MedSTAR. If in category ATS2 which, according to Ms Weetra, Mr Bromage fell into, nurses are instructed, 'Use clinical judgment in regards to either phone on-call doctor or their mobile or if patient is deteriorating quickly phone MedSTAR.'

21.2. Prior to this, nursing staff were required to call the on-call doctor regardless.

21.3. The effect of Exhibit C9 is that in the case of Mr Bromage, a clinical judgment could have – and likely would have – been made to bypass the on-call doctor and go straight to MedSTAR for advice and support.

⁴⁴ Exhibit C9

22. Retrieval to and care at the Royal Adelaide Hospital

- 22.1. Mr Bromage was transported to the Royal Adelaide Hospital by MedSTAR flight, arriving at 6:50am on 2 March 2016. By the time he arrived, it was clear from ECG testing that he had suffered a large ST elevation anterior myocardial infarction.
- 22.2. At the Royal Adelaide Hospital, a coronary angiogram was undertaken, showing triple vessel disease with 100% occlusion of the left anterior descending coronary artery and severe left ventricular dysfunction with an ejection fraction of 20%.
- 22.3. A CT scan of Mr Bromage's brain showed established posterior cerebral artery infarction.
- 22.4. Cardiology consultant Dr Karen Teo and intensive care unit consultant Dr Newman reviewed Mr Bromage and a decision was made to withdraw ICU support due to his poor prognosis. Mr Bromage was extubated on 3 March 2016, given comfort care support, and transferred to a ward. He died peacefully on 4 March 2016 at 8:50pm.
- 22.5. Mr Bromage's death was reported to the State Coroner due to concerns held by senior treating medical staff at the Royal Adelaide Hospital about his treatment prior to transfer.

23. Summary of principal findings

- 23.1. In 2016 Mr Bromage was in a category of patients which placed him at substantial risk of acute coronary syndrome.
- 23.2. On 22 and 25 February 2016, following those presentations and contact with Dr Parker, Mr Bromage should have undergone repeat ECG and serial troponin investigations.
- 23.3. If ECG and serial troponin investigation were undertaken upon either of the two presentations in February 2016, Mr Bromage's acute coronary syndrome would have been identified and he would have received treatment leading to a high likelihood that his death would have been prevented.
- 23.4. When Mr Bromage presented at the Elliston Hospital on 1 March 2016 Dr Parker should again have undertaken serial ECG and troponin investigations, on the basis that his symptoms on that day should have been considered together with his symptoms of chest pain on 22 and 25 February 2016.

- 23.5. If these investigations were undertaken on the morning of 1 March 2016, Mr Bromage's anterior myocardial infarction would have been identified and intervention could still have been considered. However, despite any treatment which might have been attempted, by this time his chance of survival was very poor.
- 23.6. Once Mr Bromage became unresponsive during the evening of 1 March 2016, the likelihood of his death being prevented by any intervention was extremely poor. I conclude that, by then, his death was not preventable.

24. Previous inquests regarding acute coronary syndrome and compliance with the chest pain protocols

- 24.1. It was clear from the evidence of Dr Heddle that there is nothing new in the practice of excluding acute coronary syndrome by repeat ECG and serial troponin testing. Its application in country health, in clinical situations where a specialist cardiologist is unlikely to be on-site, is reflected in the ICCnet CHSA Management of Chest Pain/Suspected Acute Coronary Syndrome protocol which was on a wall in the Elliston Hospital and was well-known to Dr Parker, and generally amongst country clinicians.
- 24.2. Also well-known is its rationale, the need to exclude the extremely serious condition of acute coronary syndrome, where symptoms are not inconsistent with that condition, before proceeding to diagnosis of more benign conditions.
- 24.3. Similar and related issues have been the subject of inquests undertaken by this Court.
- 24.4. A Finding of Deputy State Coroner Schapel was delivered on 30 March 2009, after an inquest into the deaths of Brian Terrance Dalling, Jack William Salotti, Richard John Grzywacz and Brian Leslie Sobey,⁴⁵ each of whom died from heart disease after presentation either at a country hospital or a country medical practice complaining of symptoms that were the product of heart disease. In each case no definitive diagnosis of an acute coronary syndrome was made and each died without effective treatment. This Finding contains a detailed and extensive review of the nature of acute coronary syndrome and its diagnosis, and the chest pain protocols. Extensive recommendations were made to address systemic issues found to have contributed to these deaths, with a particular focus on the diagnosis and treatment of acute coronary syndrome in country GP clinics and hospitals.

⁴⁵ Inquest 35/2008 - http://www.austlii.edu.au/cgi-bin/viewdoc/au/cases/sa/SACorC/2009/5.html?context=1;query=Dalling;mask_path=au/cases/sa/SACorC

- 24.5. In 2013, an inquest into the death of Jonathan Candy⁴⁶ concluded that his death in a public place from ischaemic heart disease due to coronary atherosclerosis occurred after a failure at a major public hospital to undertake repeat ECG and serial troponin testing when, two days prior to his death, he presented by ambulance after collapsing with chest pain.
- 24.6. In 2015, in a Finding of then State Coroner Johns following an inquest into the death of Fiona Selby-Fullgrabe⁴⁷, it was concluded that her survival would have been more probable than not if the iCCnet chest pain protocol had been followed in a country hospital.

25. **Conclusion**

- 25.1. Mr Bromage's death was preventable had Dr Parker ordered the undertaking of repeat ECG and serial troponin testing as required by the iCCnet chest pain protocol. In that event his active myocardial infarction/acute coronary syndrome would have been diagnosed and he would have been transferred to a tertiary hospital to receive modern life saving or life extending treatments.

26. **Recommendations**

- 26.1. This inquest has not identified systemic issues which need to be addressed and I make no recommendations.

Key Words: Country Areas - Medical Services; Medical Treatment - Medical Practitioner; Chest Pain Protocols

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

Seal the 31st day of January, 2023.

State Coroner

⁴⁶ Inquest 23/2012 - http://www.austlii.edu.au/cgi-bin/viewdoc/au/cases/sa/SACorC/2009/5.html?context=1;query=sobey;mask_path=au/cases/sa/SACorC

⁴⁷ Inquest 03/2015 - http://www.austlii.edu.au/cgi-bin/viewdoc/au/cases/sa/SACorC/2015/22.html?context=1;query=Fullgrabe;mask_path=au/cases/sa/SACorC