CORONERS ACT, 2003

SOUTH *AUSTRALIA*

FINDING OF INQUEST

An Inquest taken on behalf of our Sovereign Lady the Queen at Adelaide in the State of South Australia, on the 2nd and 3rd days of October 2012, the 26th, 27th and 28th days of November 2012 and the 31st day of January 2013, by the Coroner's Court of the said State, constituted of Mark Frederick Johns, State Coroner, into the death of Jonathon Craig Candy.

The said Court finds that Jonathon Craig Candy aged 42 years, late of 2 Swan Avenue, West Beach, South Australia died at Flinders Medical Centre, Flinders Drive, Bedford Park, South Australia on the 20th day of May 2010 as a result of ischaemic heart disease due to coronary atherosclerosis. The said Court finds that the circumstances of his death were as follows:

1. Introduction and cause of death

1.1. Mr Jonathon Candy, aged 42 years, died on 20 May 2010 shortly after he collapsed at the Westfield Marion Shopping Centre. He was transported to the Flinders Medical Centre where he was asystolic upon arrival. Further resuscitation was undertaken but no shockable rhythm could be obtained. A post-mortem examination was carried out by Dr John Gilbert, forensic pathologist, who prepared a report dated 25 November 2010[1]. Dr Gilbert gave the cause of death as ischaemic heart disease due to coronary atherosclerosis, and I so find.

2. Background

2.1. Mr Candy had a history of acute coronary syndrome in 2002. He had presented to the Queen Elizabeth Hospital with chest pain and a coronary angiography showed a 95%

occlusion of the left anterior descending coronary artery just distal to the diagonal branch and this lesion was stented. He was 34 years old at that time. He had a family history of heart disease and he himself had hypercholesterolemia and mild hypertension.

3. The events surrounding Mr Candy's admission to hospital

3.1. During the evening of 18 May 2010 Mr Candy was at a gymnasium exercising when he experienced chest pain. The chest pain resolved after rest. There was a second episode of chest pain on further exertion and, once again, it resolved after rest. The following day Mr Candy was at his workplace when he experienced further chest pain. A workmate called the ambulance service and paramedics Ms Edge and Mr Schar were despatched.

3.2. On their arrival the paramedics found that Mr Candy's chest pain had resolved. They enquired about his past medical history and ascertained that he had had the angioplasty 8 years previously. They obtained his recent history of two episodes of chest pain on exertion at the gym the previous night which had resolved after rest. They also noted that he had experienced some chest pain that day while at work with the result that they had been called. They noted that he described the pain as a tightness similar in nature to the pain that he had experienced when his stent had been required 8 years previously. On examination he was free of pain and alert and orientated. He had a strong, regular pulse and his skin was pink, cool and dry. He was able to walk to the stretcher and the paramedics transported him to the Queen Elizabeth Hospital for investigation. All this is noted on the South Australian Ambulance Service patient report form[2]. The observations taken by the paramedics were unremarkable apart from a slightly elevated blood pressure.

3.3. Mr Neville Daniels was a registered nurse on duty at the Queen Elizabeth Hospital 19 May 2010. He was the triage nurse on that day. He recalled that Mr Candy was brought in by the South Australian Ambulance Service. He gave evidence that he was informed that Mr Candy had experienced chest pain which had now resolved. For reasons that Mr Daniels was unable to explain, the triage form completed by him wrongly stated that Mr Candy had walked in to the Emergency Department and did

[1] Exhibit C3a
[2] Exhibit C11

not indicate that he had in fact arrived by ambulance[3]. The triage form also wrongly stated that Mr Candy had been exercising at the gym that day when he developed chest pain associated with shortness of breath. Mr Daniels assigned a priority 3 to Mr Candy and directed that an electrocardiograph (ECG) be obtained and routine observations be made. Mr Daniels explained that it was very busy that day and that he had triaged 39 patients during that shift[4].

3.4. Ms Shuk (Jenny) Wu was a registered nurse on duty at the Queen Elizabeth Hospital that day. She was in the Emergency Department and was on duty in the waiting area. She said that if a patient was in the waiting area for any length of time it was her job to start the nursing assessment. She recalled that Mr Candy had arrived by ambulance. She did observations and arranged for a cardiograph to be obtained. She was asked by Mr Daniels to arrange that. She knew that he had come in from the direction of the ambulance bay. She was aware that he had experienced chest pain and had a cardiac history. She had the triage sheet available to her and as a result thought that he had experienced chest pain that day. She completed the Emergency Department observations record[5]. On that record under 'presenting complaints' she wrote:

> 'Pt (patient) presented with resolved chest pain, developed episode of chest pain while exercising @ gym ~~today~~ yesterday pain like 'pulling' across chest area last for few minutes. Associate with mild SOB (shortness of breath).' [6]

It will be apparent that Ms Wu originally wrote that there had been an episode of chest pain that day which she crossed out and amended to insert the word yesterday. Ms Wu gave evidence and said when she spoke to Mr Candy she asked if he had any chest pain on arrival and he said he did not[7]. She saw from the triage sheet that he had gone to the gym and experienced chest pain that day, but when she repeated that to Mr Candy she said that he corrected her and said that it was the day before. In her evidence she could not remember whether she had specifically asked him if he had experienced any chest pain that day[8]. It appears that Mr Candy, in correcting her, was referring to the fact that he had gone to the gym the previous day and was correcting the history in that respect. However this led to confusion on the part of Ms Wu who,

[3] Exhibit C9, page 112
[4] Transcript, page 53
[5] Exhibit C9, page 115
[6] Exhibit C9, page 115
[7] Transcript, page 78
[8] Transcript, page 79

as a result, concluded that the chest pain that was recorded on the triage note as having been experienced at the gym that day had in fact occurred the previous day. As a result Ms Wu failed to understand that there had been a further episode of chest pain that very morning. Ms Wu said that it did not enter her mind when speaking to Mr Candy that a history of chest pain the previous day did not gel with the fact that Mr Candy had arrived by ambulance at the Emergency Department, suggesting some acute problem that very day. Ms Wu acknowledged that she should have asked Mr Candy why he had arrived by ambulance having regard to the conclusion she had reached about when he had experienced chest pain. She explained that it was a busy day[9]. She said that she then spoke to the medical officer on duty, Dr Naidoo. She provided Dr Naidoo with the electrocardiogram report and told him that Mr Candy was not experiencing any chest pain at that time but that he had had chest pain the previous day. She also informed Dr Naidoo about the history of a stent being inserted 8 years previously and that there had been chest pain the night before. She did not recall whether she told Dr Naidoo that Mr Candy had arrived by ambulance[10]. Unfortunately, she did not have available the South Australian Ambulance Service patient report form at that time.

3.5. The ECG report was printed at 1328 hours. The computer had automatically inserted a note as follows:

> 'Nonspecific T wave abnormality
> Abnormal ECG' [11]

3.6. Ms Deborah Wright gave evidence at the Inquest. She is a registered nurse and is the clinical practice consultant with the Acute Cardiac Assessment Service at the Queen Elizabeth Hospital. She explained that she is called upon to provide two types of services to patients. The first is a screening which she described as cursory in nature. The second is a comprehensive review[12]. She said that she liaises very closely with the treating doctor. On that day she was just leaving the department to attend a meeting when she was approached by Dr Naidoo with Mr Candy's ECG. They had a brief discussion in which Dr Naidoo told her about Mr Candy's past medical history. Ms Wright said that she looked at the ECG to look for changes that would tell her

[9] Transcript, page 80
[10] Transcript, page 81
[11] Exhibit C9, page 119
[12] Transcript, page 87

whether an acute cardiac event had occurred the night before[13]. She said that she would have told Dr Naidoo that in her opinion it was an essentially normal ECG, notwithstanding the note to the contrary which had been assigned by the computer. She said it was quite normal to reach a different conclusion from that which had been suggested by the ECG computer[14]. Her understanding was that Mr Candy had experienced two episodes of chest pain the previous evening. She did not know at the time that he had experienced a further episode of chest pain that day at work. She was aware that a blood test had also been ordered with the intention of measuring the troponin content[15]. She said that on returning from the meeting a couple of hours later she noted that Mr Candy was no longer present in the Emergency Department. She also noted that his blood test had been returned with a normal troponin result.

3.7. At the time of the hearing of this matter Dr Naidoo was no longer in Australia. As a result it was not possible for the Court to hear evidence from him.

4. The acute event

4.1. Mr Candy was discharged from the Queen Elizabeth Hospital sometime after 3:30pm that afternoon. The following day at approximately 4:30pm he was at the Marion Shopping Centre when he collapsed. The event was recorded by CCTV cameras[16]. The CCTV footage shows that a member of the public carried out CPR for a brief period. Ambulance paramedics arrived after some 8 minutes and commenced CPR. They defibrillated Mr Candy, the ECG pads having revealed that he was in ventricular fibrillation. He remained in ventricular fibrillation and was transferred to the Flinders Medical Centre under CPR. He had multiple doses of adrenalin and at least a dozen defibrillator shocks. He was unable to be resuscitated and he was declared deceased at the Flinders Medical Centre at 1838 hours that day.

5. The expert evidence

5.1. The Court heard evidence from Dr William Heddle in the capacity of an expert witness. Dr Heddle is a cardiologist who has given expert evidence in this Court on many occasions. Dr Heddle prepared a report for the Court[17].

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[13] Transcript, page 91
[14] Transcript, page 99
[15] A Troponin T test is designed to detect and measure, within certain limitations, the existence of Troponin in the blood stream. The existence of Troponin in the blood stream can be the reflection of myocardial damage caused by an acute infarction or heart attack.
[16] Exhibit C6b
[17] Exhibit C14

5.2. Dr Heddle was concerned about the events that transpired at the Queen Elizabeth Hospital the previous day. Dr Heddle was concerned about the manner in which history was taken from Mr Candy. Dr Heddle said that it is important to take a history from a patient in an open manner. He said that it is unwise to take the history after having read the notes provided by other members of the hospital staff[18]. He said it is important to take the history de novo so as not to be influenced by what others have concluded. He said that in the result it is the treating doctor's responsibility to take a full history. Dr Heddle remarked that someone in a position of responsibility should have asked why it was that Mr Candy came in by ambulance when the chest pain was only supposedly experienced the previous night[19]. Dr Heddle said that if the history showed that Mr Candy had experienced pain that day it would not have been safe to discharge him that day without taking a repeat troponin test and a second ECG. Dr Heddle was critical that the South Australian Ambulance Service patient report form had not been called for and reviewed[20]. He acknowledged that it is often the case that they are not present at the time a treating doctor examines a patient. He said that it is incumbent on the treating doctor to seek it out and commented that he had spent a lot of his life searching for ambulance report forms because they can contain important information. Dr Heddle emphasised that a history of chest pain the previous night was a very different thing from a history of chest pain the previous night and that morning. He emphasised that it is very critical to phrase initial questions when taking a history in an open fashion so there is no inclination for the patient to exclude information because he or she thinks it is not relevant. He said it is important not to start asking the patient directed questions[21].

5.3. Dr Heddle noted that the history taken by Dr Naidoo[22] also failed to elicit the history of an episode of chest pain that morning. In fact, Dr Naidoo's history is as follows:

> 'Was at gym last night on treadmill and developed few mins. of chest pain. Relieved with rest. No associated features/symptoms. No further pain tonight.'

Curiously, Dr Naidoo has written 'tonight' when he in fact saw Mr Candy at 1:30pm. In the circumstances it is reasonable to assume that he is referring to 'today', rather than 'tonight'. In any event, he has clearly failed to elicit the history of chest pain earlier that morning that was so clearly referred to in the ambulance report form

[18] Transcript, page 126
[19] Transcript, page 128
[20] Transcript, page 130
[21] Transcript, page 131
[22] Exhibit C9, page 113

which was present in the hospital, although obviously not available to Dr Naidoo when he reached his incorrect conclusions.

5.4. Dr Heddle said that if the history taken by Dr Naidoo had been correct, then with a normal troponin result it would have been appropriate to discharge Mr Candy. He said that a troponin test does not show evidence of damage that has occurred in the last 6 hours before the blood was taken. Dr Heddle gave his opinion about the ECG report. He said that the fact that the computer reported the ECG as abnormal is something that an examiner does not need to accept, but there is a need to look very carefully at the document. Dr Heddle was of the view that the ECG, which was interpreted by Dr Naidoo as normal and showing no ischaemic change, was in fact the subject of some concern. Dr Heddle thought that the terminal part of the T wave on the V2 to V5 leads exposed matters of concern[23]. However, Dr Heddle was not overly critical of Dr Naidoo's failure to note the subtle variances that Dr Heddle himself found to be significant. Dr Heddle said that it is important to compare the ECG with other ECGs[24]. In this respect it was notable that there were such other ECGs on the Queen Elizabeth Hospital records from Mr Candy's angioplasty in 2002. The opportunity did exist for a comparison to be made. Furthermore, Dr Heddle commented that in a teaching hospital it is always possible to get a cardiologist to have a look at an ECG. In the result, Dr Heddle was critical of the history taking and the lack of confirmation of what the paramedics had reported. He was of the view that the ECG should not have been regarded as normal. It was his belief that if a further troponin test had been carried out it is probable that it would have returned an abnormal result. He said that if the relevant protocols are correctly followed the chances of an acute event being missed are extremely low[25]. It was his view that if an angioplasty had been carried out upon Mr Candy there would have been a 95% chance of survival for the next year and a 75% chance of survival for the next 10 years[26].

5.5. The conclusion I draw from Dr Heddle's evidence was that Mr Candy's tragic death was entirely preventable. The failure to obtain a proper history by any of the following persons, namely Dr Naidoo, Nurse Wu or Nurse Daniels, was responsible for the decision to allow Mr Candy to leave the hospital without a second troponin test or a second ECG.

[23] Transcript, page 139
[24] Transcript, page 141

6. Mr Candy's collapse at Westfield Marion

6.1. I have already mentioned that Mr Candy collapsed at the Westfield Marion Shopping Centre on 20 May 2010. His collapse occurred at approximately 5:30pm. CCTV footage recorded by Westfield Marion's security system depicts the events surrounding Mr Candy's collapse and the attempts at resuscitation which were made by passers-by and subsequently by security staff. Investigations were carried out to identify the persons involved. One of the first persons on the scene was a member of the public, Mr Walter Culture, who was called to give evidence. It was plain from the CCTV footage that he very commendably commenced cardiopulmonary resuscitation. Security staff appeared on the scene shortly after that and made arrangements for the South Australian Ambulance Service to be called. As it happened, paramedics were already at Westfield Marion attending to another matter and were able to be on the scene within a short period.

6.2. I do not propose to set out in detail the exact sequence of events following Mr Candy's collapse as it is unnecessary. It is worth mentioning however that there was present at Westfield Marion an automatic external defibrillation machine at the time of Mr Candy's collapse. In fact there were two such machines in the Centre at that time. One of them was located at a customer service desk only 70 metres from the site of Mr Candy's collapse. That machine was brought to the scene but in the event it was not used because the ambulance personnel arrived shortly thereafter with their own equipment.

6.3. The Inquest heard evidence about Westfield Marion's deployment of automatic external defibrillators at Westfield Marion. As I have said, at the time there were two such machines at the Centre and, as I understand it, there are now five. The machines that were deployed as at 20 May 2005 have subsequently been replaced by a different model of automatic external defibrillator which may be used by any member of the public. At the time of the initial roll-out which occurred only shortly before Mr Candy's death, the machines that had been deployed were, under Westfield policy, only to be used by trained Westfield staff. The machines had in fact only been deployed some two weeks prior to Mr Candy's collapse, and at the time there were eight Westfield staff qualified and trained to use them. The training program

[25] Transcript, page 142
[26] Transcript, page 142

continued to develop thereafter with more staff and security officers also being trained in their use.

6.4. In my opinion, Westfield is to be commended for its public spiritedness in the deployment of automatic external defibrillators at its shopping centres. Professor Heddle gave evidence in relation to their use and noted the success following their deployment at O'Hare Airport in Chicago. However, Professor Heddle made the very important point that in order for a defibrillator to be deployed in the first place, it is essential that someone be in a position to recognise that the collapse was as a result of a sudden cardiac arrest[27]. In the present case the CCTV footage shows that there was no witness to Mr Candy's actual collapse. It is true that people appeared on the scene shortly afterwards, but they would have had no way of determining how long he had been in a state of collapse, nor would they have known that his collapse was sudden. For all the passers-by might have known at that point, he may have simply been asleep or affected by drugs or alcohol.

6.5. It is possible that if a medically trained person had been present at the moment of Mr Candy's actual collapse, they may have recognised that it was a sudden cardiac event. They may also have had the presence of mind to raise the alarm and to enquire as to the presence of defibrillation equipment. Had that occurred, it is possible that the equipment may have been deployed well before the arrival of the ambulance staff and in sufficient time to have saved Mr Candy's life. The difficulty in this case is that the collapse was unwitnessed, and so the opportunity for recognising the event for what it was simply did not arise.

6.6. Nevertheless, the case serves to demonstrate the value of the installation of automatic external defibrillators in public spaces such as major shopping centres. I wholeheartedly commend Westfield Marion Shopping Centre's decision to install defibrillators and furthermore to upgrade the machines at Westfield Marion so that they can be used by any member of the public. Regrettably, the fact remains that there will always be a need for a sudden collapse to be witnessed by a person who is capable of recognising a sudden cardiac event even if defibrillation equipment is near to hand. That however is not a reason for discouraging their deployment. Machines such as those that have been installed now at Westfield Marion can certainly do no harm, and have the potential to save life. It is unfortunate that, despite Westfield's

good intentions, the circumstances surrounding Mr Candy's collapse were such that the opportunity presented by the recent deployment of automatic external defibrillators at Westfield Marion was to no avail.

7. Conclusion

7.1. In my opinion Mr Candy's tragic death was entirely preventable had the relevant staff at the Queen Elizabeth Hospital, namely Dr Naidoo, Nurse Wu or Nurse Daniels taken a proper history from him. Had that occurred I have no doubt he would not have been allowed to leave the hospital without a second Troponin test or a second ECG and he would have been appropriately treated. He would not have been present at Westfield Marion the following day if that had occurred.

8. Recommendations

8.1. I have no recommendations to make in this matter.

Key Words: Hospital Treatment; Defibrillator

In witness whereof the said Coroner has hereunto set and subscribed his hand and Seal the 31st day of January, 2013.

State Coroner

[27] Transcript, page 145