CORONERS ACT, 2003

SOUTH *AUSTRALIA*

FINDING OF INQUEST

An Inquest taken on behalf of our Sovereign Lady the Queen at Berri in the State of South Australia, on the 27th, 28th and 29th days of November 2006, and the 7th day of February 2007, by the Coroner's Court of the said State, constituted of Mark Frederick Johns, State Coroner, into the death of Amy Louise Robbins.

The said Court finds that Amy Louise Robbins aged 16 years, late of Lot 5, Twenty Second Street, Renmark died at Berri Regional Hospital, Maddern Street, Berri, South Australia on the 1st day of December 2003 as a result of intra-abdominal haemorrhage due to ruptured spleen. The said Court finds that the circumstances of her death were as follows:

1. Introduction

1.1. Amy Robbins was 16 years of age at the time of her death on 1 December 2003 at the Berri Campus of the Riverland Regional Health Service Incorporated (hereinafter referred to as the "Berri Hospital")[1].

1.2. Earlier that day, Ms Robbins had been a passenger in a Ford station wagon that was involved in an accident two kilometres east of the intersection of the Sturt Highway and Murtho Road. As a result of that accident, two occupants of the Ford were flung from the vehicle. One of those was Ms Robbins.

1.3. The previous day was a Sunday. A group of teenage girls had assembled at the house of Kiralee Jury. Amongst those teenage girls was Amy Robbins. A record of interview was conducted by Senior Constable Nicolle Dempster of the Major Crash

[1] The Renmark Hospital is another campus of the Riverland Regional Health Service Inc. and will be referred to in these findings as "the Remark Hospital".

Investigation Unit with Ms Jury.[2] The following is a brief summary, drawn from the record of interview, of the events of the evening of 30 November 2003 and early morning of 1 December 2003.

1.4. Five teenage girls had assembled at the house of Kiralee Jury, including as already noted, Ms Robbins. The girls met late in the afternoon at approximately 6:30pm. The girls were then driven by Ms Jury to Loxton in a 1988 Ford station wagon for the purpose of seeing the celebrations at Loxton associated with a Christmas lights display in that town. The Ford station wagon was capable of transporting six passengers, three in the front seat and three in the rear seat. The evening was spent in and around Loxton with the girls observing the light displays and fireworks displays associated with the event. The girls were socialising with various people whom they knew at Loxton. At approximately 2:00am on the morning of 1 December 2003 the five girls, together with two boys by the names of Ryan and Daniel, got into the car, with Kiralee driving, for the purpose of driving to Renmark to obtain food. It will be noted that at this point there were seven passenger in a car designed to hold six passengers.

1.5. On arrival at Renmark, the teenagers were unable to find a place from which they could obtain food, and someone made the suggestion that they drive to a nearby town called Yamba at which a 24-hour service station was known to supply what Ms Jury described as “really nice food and hamburgers and stuff”.

1.6. As at 1 December 2003 Kiralee Jury had held a provisional drivers licence for approximately two and a half weeks, having obtained her licence on 12 November 2003. Prior to that she had held a learners permit which she obtained on 12 May 2003, and thus was the holder of a learners permit between 12 May 2003 and 12 November 2003. Ms Jury was an inexperienced driver although she considered herself to be a good driver. She had driven the Ford vehicle at night on approximately five or six previous occasions. On any view, and regardless of Ms Jury’s own assessment of her driving abilities, she would have to be regarded as an extremely inexperienced young driver.

1.7. When the teenagers arrived at the Yamba Roadhouse they duly obtained food including a hamburger which was to be shared between Ms Jury and one of the other

[2] Exhibit C16b

girls who was sitting in the front seat next to Ms Jury. The teenagers, having obtained the food, then returned to the vehicle. Ms Jury was driving and two other teenage girls were sitting in the front seat, one of whom was the girl who was sharing Ms Jury's hamburger. In the rear seat there were two teenage girls (one of whom was Ms Robbins) and one boy. Ms Robbins occupied the middle position in the rear seat. To her left was the male teenager. The seventh occupant, a male teenager by the name of Daniel, was positioned in the rear cargo area of the station wagon.

1.8. Ms Jury commenced to drive the vehicle from Yamba in the direction of Renmark. As she was driving, she was being handed the hamburger by the other teenage girl. The hamburger was passed backwards and forwards several times. Although Ms Jury was very vague about any connection between the handling of the hamburger and the accident which subsequently happened, it seems likely that as she was passing the hamburger to the other teenage girl the car drifted onto the left-hand side of the road. Ms Jury corrected the vehicle's line of travel. It returned briefly to the bitumen, sliding in the opposite direction, and she then corrected again causing the vehicle to slide, the left-hand side being foremost, in the original direction of travel. The vehicle continued to slide off the road until the left front wheel hit a raised piece of ground causing the entire vehicle to roll one and a half times, landing on its roof in a vineyard by the side of the road. The vineyard was approximately two metres below the level of the road surface at the place where the vehicle came to rest. Miraculously, the male passenger in the rear cargo bay of the station wagon was not seriously injured. The male in the rear seat next to Ms Robbins was flung from the vehicle, presumably through the left rear door or window of the vehicle. Ms Robbins was also flung through that same door or window.

1.9. After the collision one of the passengers, Kylie Marco, contacted the South Australian Ambulance Service by means of a mobile telephone. A screen dump which was admitted as Exhibit C15g in these proceedings records that the telephone call occurred at 2:28am on 1 December 2003. The same exhibit shows that the ambulance designated Renmark 188 was despatched at 2:31am and arrived at the scene of the accident at 2:45am. The ambulance officers who comprised the crew of Renmark 188 were Leon Hartwig and Kieran Johnson. Both of these officers gave evidence at the Inquest. As will become apparent in the course of these findings, ambulance Renmark 188 departed the scene at 3:08am (see Exhibit C15g) with Ms Robbins on a

stretcher in the rear of the ambulance, arriving at the Renmark Hospital at 3:16am. As ambulance Renmark 188 was departing the accident scene, the Berri ambulance 178 was arriving. Some of the other patients who were less seriously injured than Ms Robbins were conveyed in ambulance Berri 178.

1.10. Ambulance Officer Leon Hartwig

Mr Hartwig gave evidence at the Inquest. He has been a full-time ambulance officer since 1989 and holds the qualification of Paramedic Level 3. He identified the South Australian Ambulance Patient Report Form No. 671460 which comprises a part of Exhibit C15g in these proceedings as the patient report form or case card relating to the transportation of Ms Robbins from the accident scene to the Renmark Hospital. That case card records that Ms Robbins, when first seen by the Ambulance Officers was unconscious, lying on her right side, 30 metres from the vehicle. She had a Glasgow Coma Score of 4 and her airway was clear apart from trismus (clenching of the teeth). Her heart rate was 125 beats per minute, she had no blood pressure and the heart monitor showed sinus tachycardia. Her respirations were laboured and shallow with oxygen saturations of 83 percent. Her right pupil was dilated and fixed, her left pupil was size 4 reacting.

1.11. Mr Hartwig said that the case card was prepared by his partner, Kieran Johnson, who attended to Ms Robbins that night. Mr Hartwig described the request for attendance via pager from the Communications Centre, collecting his partner Kieran Johnson, and proceeding to the accident scene. I have already referred to the times at which the call for assistance was made, the ambulance despatched, and its time of arrival at the scene. In my view the ambulance arrived in a timely fashion at the scene.

1.12. Mr Hartwig said that Mr Johnson assumed responsibility for the clinical care of Ms Robbins while Mr Hartwig dealt with communication and general scene management. Mr Hartwig was asked about several references in Exhibit C15d (a transcript of the ambulance radio communications between Mr Hartwig and the Communications Centre) in which the Centre mentioned that a doctor was on standby at the hospital and could be picked up by one of the other ambulances to attend the scene if necessary. Mr Hartwig had no recollection of this offer when he gave his evidence. He agreed that it may have been useful if a doctor had been at the scene. However, in light of the fact that the ambulance containing Ms Robbins left very soon after the arrival of the second ambulance, it is difficult to see that much would have

been gained by the attendance of a doctor at the scene. In fact, the only doctor who was available was Dr Steyn who was at the Renmark Hospital. It may have been counter-productive for Dr Steyn to have been taken to the scene only to have to return almost immediately in the ambulance with Ms Robbins. Furthermore, there was a prospect that the ambulance which would have collected Dr Steyn would have been the third ambulance which did not arrive at the scene until after Ms Robbins had departed. In the end, I do not think much turns upon the offer of a doctor attending the scene as revealed by the transcriptions.

1.13. Mr Hartwig said that he and Mr Johnson loaded Ms Robbins into the ambulance just before the arrival of the Berri ambulance at 2:55am. He stated that it was necessary to await the arrival of the Berri ambulance so as not to leave the other patients unattended.

1.14. Mr Hartwig stated that he gave no thought to transporting Ms Robbins direct to the Berri Hospital. He stated that the ambulance service does not bypass the nearest hospital, (which in this case was the Renmark Hospital), to go elsewhere. He stated that there are no exceptions to this policy. He stated that when the ambulance arrived at the hospital Dr Steyn was waiting. Dr Steyn took over the management of Ms Robbins.

1.15. Mr Hartwig stated that it took nine minutes to go from the scene of the accident to the Renmark Hospital and that it would have taken approximately twenty minutes to drive to the Berri Hospital. He acknowledged that the Berri Hospital was better equipped than Renmark and stated that Renmark Hospital was only equipped for day surgery. He also stated that imaging is better at the Berri Hospital than at Renmark.

1.16. Mr Hartwig stated that he did not assess Ms Robbins at the scene – that was done entirely by Mr Johnson. He stated that to his knowledge Ms Robbins was unconscious with a compromised airway (by virtue of the trismus). Mr Hartwig did not hear anything at the scene to suggest that Ms Robbins may have been suffering from internal bleeding but he stated that there was certainly potential for Ms Robbins to need surgery as she had been thrown from the vehicle. He stated that he realised that she would need surgery and x-rays and acknowledged that he knew that this could not be done at Renmark. However, he complied with the South Australian Ambulance Service protocol to take the patient to the nearest hospital.

1.17. Ambulance Officer Keiran Johnson

Mr Johnson is a fulltime paramedic employed by the South Australian Ambulance Service. He referred to the patient report form or case card relating to Ms Robbins, patient report form 671463, and acknowledged that all writing that appears on it is in his own hand. He agreed that he was to carry out the role of clinician in relation to Ms Robbins while Mr Hartwig was the driver of the vehicle and was responsible for communications at the scene. He stated that Ms Robbins was some distance away from the overturned Ford, lying in a right lateral position. He stated that the other teenagers had put her in the "coma" position. He carried out the basic assessment of her airway, breathing and circulation, and remained with her from that point onwards. He stated that she had an unsatisfactory airway in that it was compromised by the clenched teeth or trismus, that she had no radial pulse and no blood pressure could be detected. He said there was no indication of bleeding from any external injury. He made notes as he was going along by writing them on his gloved hand and he completed the case card on arrival at the Renmark Hospital.

1.18. Mr Johnson stated that it took twelve minutes before Ms Robbins was loaded onto the ambulance and that the Berri ambulance crew arrived just as they loaded Ms Robbins. Mr Johnson asked one of the paramedics on the Berri ambulance to attempt to obtain an IV access line in Ms Robbins because he was not qualified to do that. After two attempts access was not successfully obtained. This took less than five minutes. The ambulance then departed for Renmark Hospital. Throughout the trip Mr Johnson was "bag and masking" Ms Robbins in order to maintain her oxygen saturations. She was spontaneously breathing but her respirations were laboured. He stated that Ms Robbins was not conscious at any time while he was with her.

1.19. Mr Johnson threw some light upon the mode of communications which was in operation at the time. He stated that this event occurred just after the South Australian Ambulance Service, at least in the Riverland region, moved over to the Government Radio Network ("GRN"). He stated that the Berri Communications Centre had closed just before the GRN came online. He stated that before the advent of the GRN, the Communications Centre would contact the hospital to advise of the imminent arrival of the ambulance. He stated that now, with the ambulance having access to the GRN network, the ambulance itself initiates that contact with the hospital directly. He stated that at the time of this incident, neither the Berri Hospital nor the Renmark

Hospital had access to the GRN system. However, both hospitals do have such access now.

1.20. Mr Johnson stated that no consideration was given to conveying Ms Robbins directly to Berri Hospital rather than Renmark Hospital. He stated that this was simply because it was the ambulance service practice and policy to go to the nearest hospital. He was not aware of any exceptions to that policy. He added that because Ms Robbins had no detectable blood pressure and a compromised airway she was regarded as a "time critical" or unstable patient and this was another reason why it was appropriate to go directly to the nearest hospital.

1.21. Mr Johnson stated that he understood that if a hospital to which an ambulance is proceeding is full and unable to take any further patients then it is possible for the ambulance to bypass that hospital, but he insisted that even in those circumstances the hospital would still receive a time critical or unstable patient. He was not aware whether the Communications Centre had contacted Renmark Hospital to advise of their arrival time. He had expected that they would.

1.22. On arrival at the Renmark Hospital he stated that he wheeled Ms Robbins into the casualty room and then walked up the corridor to signal the doctor and nurse that they had arrived. At that point Dr Steyn and the nurse were not aware of their arrival. Mr Johnson gave a verbal handover to Dr Steyn. He had no further involvement with Ms Robbins' treatment after arrival at Renmark Hospital.

2. Transfer of Ms Robbins from Renmark Hospital to Berri Hospital

2.1. For reasons which will become apparent later, it was necessary after some time at the Renmark Hospital to transfer Ms Robbins from that hospital to the Berri Hospital for surgical treatment. Mr Johnson gave evidence that he and Mr Hartwig were involved in the transfer of Ms Robbins at that time. He stated that Dr Steyn attended to Ms Robbins in the back of the ambulance together with Mr Hartwig and that Mr Johnson was the driver on that occasion.

2.2. Dr Johannes Steyn

Dr Steyn gave evidence at the Inquest. He qualified in South Africa in 1988 and moved to Renmark in 1998. He practises in Renmark as a general practitioner with four partners, one of whom works part-time. Dr Steyn is a general practitioner

anaesthetist and is on the regional anaesthetic roster in Berri and Renmark. He stated that there is a consultant anaesthetist in Berri and that he and certain other general practitioner anaesthetists assist with the anaesthetic roster. He has had a considerable amount of trauma experience since qualifying in 1988.

2.3. Dr Steyn gave evidence of the impact of the general shortage of general practitioners in country regions and its particular impact on Renmark. He stated that at present his practice is four general practitioners short of a sufficient complement.

2.4. Dr Steyn set the general picture for the medical services available in the Riverland. He stated that the consultant anaesthetist already referred to is the only consultant anaesthetist in the Riverland but that there are six general practitioner anaesthetists including himself who share the anaesthetic roster with that consultant. He stated that there are two resident general surgeons in Berri of whom another witness, Dr Seglenieks, is one. Dr Seglenieks was the surgeon who performed surgery upon Ms Robbins after her transfer to the Berri Hospital. His evidence will be discussed in due course. Dr Steyn stated that the main imaging service for the Riverland is situated at the Berri Hospital and that the imaging facility at Renmark Hospital is a plain x-ray which must be operated by the general practitioners.

2.5. Dr Steyn stated that it can take a few hours to retrieve a patient to Adelaide and there are two or three such retrievals per month. Most of them are cardiac patients. Dr Steyn told the Court that in the month of November 2006, (the Inquest was held at the end of that month), he had been on-call for ten nights. Dr Steyn stated that he holds the regional South Australian Ambulance Service in high regard and that it provides an exceptional service. Although I will comment further in due course, I interpolate that I have no criticism of the treatment provided to Ms Robbins by the two ambulance officers Messrs Hartwig and Johnson. To the contrary, I consider that they did all they could in the circumstances and performed extremely well. There can be no criticism of these two officers for complying with a general policy of the South Australian Ambulance Service that time critical or unstable patients be taken to the nearest hospital without exception (it should be noted that this policy does not apply in the metropolitan area where there is a trauma bypass system in place).

2.6. Dr Steyn stated that when Ms Robbins arrived at the hospital he commenced to resuscitate her. He stated that she needed IV access for fluids. He assessed her

airway breathing and circulation initially and continued to reassess these on a continual basis. After her arrival he called one of his partners, Dr Rosenthal, in to assist him.

2.7. Dr Steyn stated that Ms Robbins was not fully conscious. She was moving her limbs but was not responding otherwise. He stated that he intubated her without the use of sedatives and administered a paralysing agent after intubation so that she could be mechanically ventilated.

2.8. He stated that Ms Robbins had decreased air entry to her left lung as a result of which an intercostal drain was inserted. He stated that her lung had collapsed from trauma.

2.9. Dr Steyn did not recall precisely when Dr Seglenieks was contacted. He stated that the purpose of the contact was to arrange for Ms Robbins to be transferred to Berri Hospital in order to perform surgery to save her life. Dr Steyn was aware that Dr Seglenieks was in Berri and was on-call that night. He stated that there was no request for Dr Seglenieks to come to Renmark and that his expectation was always that she would be taken to Berri for the necessary surgery.

2.10. Dr Steyn stated there was only one unit of O negative blood available in Renmark. O negative blood is used in emergency situations in which there is no facility or no time to cross-match a patient and supply appropriately matched blood. Dr Steyn stated that there is only ever one such unit of O negative blood in Renmark. He stated that in Berri Hospital there is the facility to cross-match a patient and supply more blood but that Renmark Hospital could not perform the cross-matching procedure. In Berri Hospital there is an IMVS technician who can be called in on an as-needed basis out of hours for that purpose. While at the Renmark Hospital Ms Robbins was given the one unit of O negative blood already referred to. She was also provided with colloids and crystalloids but these do not have oxygen carrying capacity and consequently Ms Robbins needed more whole blood. Dr Steyn stated that the lack of whole blood definitely played a role in impeding Ms Robbins’ chances of survival. He stated that transfusion was an essential element in the stabilisation of Ms Robbins.

2.11. Dr Steyn stated that after Ms Robbins was intubated and ventilated and an intercostal drain inserted to deal with the difficulties with her left lung she developed abdominal distension. That showed that there was a need for an operation to deal with internal bleeding. Dr Steyn stated that as her blood volume was replenished it was being lost

but this state of affairs can take some time to become physically apparent. Dr Steyn stated that the internal bleeding would have become apparent by approximately 4:35am at which time he arranged for Dr Seglenieks to be contacted.

2.12. Dr Steyn stated that he performed a chest x-ray before the intercostal drain was inserted. This process took place quite soon after Ms Robbins' arrival at the hospital. He stated that there was a large pneumothorax and a small haemothorax. The x-ray took fifteen to twenty minutes to arrange, and had to be performed by Dr Steyn himself. At all times, Ms Robbins was being hand ventilated. She was provided with adrenalin and atropine at the Renmark Hospital to improve her cardiac output.

2.13. Dr Steyn stated that he continued to ventilate Ms Robbins throughout the ambulance journey to Berri Hospital. Ms Robbins suffered an arrest on arrival at the Berri Hospital. On arrival at the Berri Hospital, Dr Steyn assisted with an emergency laparotomy performed by Dr Seglenieks.

2.14. Dr Steyn stated that he did not notice any sign of trismus in Ms Robbins and acknowledged that this may have existed at the accident scene, but passed in the time it took for the ambulance service to transport Ms Robbins to the Renmark Hospital. He stated that it is possible for trismus to be transient in nature.

3. <u>Renmark Hospital casenotes</u>

3.1. The Renmark Hospital casenotes were admitted as Exhibit C20 in these proceedings. The special nursing record shows the course of her treatment in the time that she was at that hospital. The first entry on that record occurs at 3:35am, and the last entry at 5:05am. The record confirms the administration of the colloids and crystalloids already referred to and the single unit of O negative blood. The record shows that at 4:15am, Ms Robbins' pulse rate was high at 125 beats per minute and that her blood pressure had fallen to 76 over 33. It also recorded what appears to be an oxygen saturation of only 70 percent at that time. An entry at 4:25am records the administration of adrenalin and atropine. This is significant because Exhibit C21b, which is a handwritten note made by Dr Seglenieks shortly after Ms Robbins died in surgery, records that he was contacted at his home at 4:25am by Dr Rosenthal. He was advised by Dr Rosenthal that a patient needed to be transferred to Berri Hospital for blood and surgery and that the patient was hypotensive with a distended abdomen, a left pneumothorax and had been intubated following a bradycardic "arrest" at

Renmark Hospital after a road crash. It was put to me by Mr Rau for Dr Seglenieks, and I accept, that the most likely explanation of the Renmark Hospital notes special nursing record already described, considered against the contemporaneous account written by Dr Seglenieks, is that there was a bradycardic arrest as described by Dr Seglenieks in his notes which occurred some time between 4:15am and 4:25am, and it was this event which precipitated the decision by Dr Steyn to contact Dr Seglenieks and request his assistance in providing surgery for Ms Robbins.

3.2. There is no doubt that Dr Steyn worked extremely hard and conscientiously in order to do all that he could for Ms Robbins with the limited facilities that were at his disposal at the Renmark Hospital that night.

3.3. Dr Seglenieks – Events at the Berri Hospital

Dr Seglenieks is a general surgeon who operated upon Ms Robbins at the Berri Hospital in the early hours of the morning of 1 December 2003. He gave evidence at the Inquest. As I have already stated, Dr Seglenieks prepared a detailed and extremely helpful retrospective note of his treatment of Ms Robbins approximately a half an hour after she was declared deceased. I quote in full:

> '1 December 2003
>
> Referral Dr J Steyn / Dr Rosenthal
>
> Seen as emergency out of hours 0520 Berri Hospital theatre. Initial call received at home 0425 DRR: advised that patient needed transfer to Berri for blood & surgery (hypotensive, distended abdomen, left pneumothorax and intubated following bradycardiac "arrest" in Renmark Hospital, after road crash).
>
> From Ambulance Officers: arrived on scene of car rollover 110kph zone Sturt Highway near Yamba 0300 hrs. Patient ejected and found 30 feet from vehicle. GCS 3-5 → taken to Renmark Hospital.
>
> On arrival at operating room: extreme pallor, pulseless, pupils dilated and non-responsive. Accompanying medical officer (JS) stated acute change since trip in ambulance → external cardiac massage/IV Blood (Dr Jila present, dealing with airway/ventilation/IV access, underwater sealed drain in place left chest → small volume blood.
>
> After little response to resuscitation, midline laparotomy performed with aim of controlling continued presumed intra-abdominal bleeding ? aortic compression/clamping.
>
> LAPAROTOMY: Large haemoperitoneum > 3 litres. Shattered spleen, small tear left lobe liver. Central retroperitoneal haematoma – not substantial. Aorta compressed (no pulse), spleen removed.
>
> No response (CVS or CNS) → efforts ceased 0610 hrs.

Declared dead at this time, although moribund on arrival.

Signed: Seglenieks'[3]

3.4. This retrospective note of Dr Seglenieks explains his involvement with Ms Robbins quite comprehensively. In his oral evidence Dr Seglenieks was able to provide further information in relation to the facilities at the Renmark Hospital and the Berri Hospital. He stated that the operating facilities at the Renmark Hospital at the relevant time were, to use Dr Seglenieks words, antiquated, but have since been upgraded. On the other hand Berri Hospital has two fully functional theatres and dedicated theatre staff. Renmark Hospital theatre staff must perform duties on the ward as well as their theatre duties. At the Renmark Hospital the procedures which are carried out are minor, and no abdominal surgery is performed.

3.5. Dr Seglenieks has two major lists in Berri and a weekly minor surgical list in Renmark. His consulting rooms are in Berri. There is one other general surgeon in Berri, a Dr Nettlefold. Between them they make themselves available for out of hours surgery at Berri. Dr Seglenieks stated that Berri Hospital is equipped with a CT scanner and other radiological equipment. There is a radiographer on-duty or on-call twenty-four hours per day and there is an IMVS laboratory that provides cross-matching capabilities. As to blood and similar products, Dr Seglenieks stated that Renmark Hospital might store one or two units of universal blood and so cannot sustain long term transfusions. On the other hand the Berri Hospital has blood and blood product stocks which are more extensive and in addition, a cross-matching service. Dr Seglenieks commented that the radiological facilities at Renmark Hospital are suitable for limb fractures but that it is difficult to obtain good x-rays of chests and abdomens and that radiographers are better at interpreting such x-rays than general practitioners.

3.6. Dr Seglenieks stated that when he was first contacted at 0425 hours, the caller was Dr Rosenthal. Dr Rosenthal said words to the effect "can you come". However, Dr Seglenieks realised that Ms Robbins really needed to come to Berri Hospital where the more extensive surgical facilities referred to above were available. He believed he would have told Dr Rosenthal to get Ms Robbins stabilised and then to bring her to Berri Hospital where blood and other necessary facilities were available. Dr Seglenieks stated that in the circumstances with which the clinicians were faced in

[3] Exhibit C21b

the early hours of the morning of 1 December 2003, "you need a trauma team". He stated that as a clinician he would not know what issues would arise until after he commenced operating upon Ms Robbins. For this reason it would have been in his opinion, and I agree, entirely inappropriate for Dr Seglenieks to have travelled to Renmark where the facilities were inadequate for the challenges likely to be presented by Ms Robbins' case. By far the best approach was to bring Ms Robbins to the better facility and this is what Dr Seglenieks requested.

3.7. Dr Seglenieks was questioned about the special nursing record from the Renmark Hospital notes which has already been referred to. He perused the entries to which I have already referred, and noted that the raised pulse rate and low blood pressure revealed in the records are consistent with someone who has lost blood. He noted that the entries at 4:15am and for the ensuing ten minutes, with a blood pressure that had suddenly fallen, coincided with what he was informed was a bradycardic arrest. He stated that he had the impression that for the first forty minutes after Ms Robbins' arrival at the Renmark Hospital there was some sort of response to the fluids that were given, but at 4:15am there was a dramatic change with a fall in the heart rate to a bradycardic state, coinciding with the time that he was contacted by Dr Rosenthal.

3.8. Dr Seglenieks stated that if Ms Robbins had been brought straight to the Berri Hospital he and the anaesthetist would have assessed her as she came in the door. He believed that he would have made a decision to put her straight into theatre with the result that she may possibly have been in the theatre as early as 3:45am. He explained that the initial notes, to use his words, spoke "loudly" to him of intra-abdominal bleeding. Therefore he would have regarded it as appropriate to take Ms Robbins straight into surgery without delay. He was asked about the need to deal with the chest drains before surgery, but responded that they could have been attended to while the anaesthetic preparation was being done.

3.9. Dr Seglenieks' evidence about efforts to establish Berri Hospital as a trauma centre

Dr Seglenieks said in his evidence that in the two years prior to Ms Robbins' accident he and other interested clinicians had set up a Major Trauma Management Working Party for the Berri Hospital. The aim of this endeavour was to see if it would be feasible to make Berri Hospital the focus of trauma management in the region. The work of the committee was divided into three stages. There was communication with other hospitals in the region and with the general practitioners. The South Australian

Ambulance Service was also asked for its feedback. The first step in the process was to improve trauma management at Berri Hospital. The working party was a sub-committee of the Medical and Surgical Procedures Committee of Berri Hospital. That committee was composed of doctors and nurses from Berri Hospital. The final report of the working party, which was an attachment to minutes of the working party of a meeting held on 4 December 2001, was admitted as Exhibit C21c in these proceedings. An attachment to the report entitled "Riverland Regional Health Service – Major Trauma Team Callout Protocols" was admitted as Exhibit C21d in these proceedings. The report of the working party deals largely with the practicalities of developing an efficient trauma service at the Berri Hospital. It envisaged that work required for the development of such a process at Berri Hospital would be stage one of a wider project. Stage two would be the acceptance of a major trauma team protocol which is set out in Exhibit C21d. The third stage as set out in the document is rather vaguely expressed. However, according to the evidence of Dr Seglenieks, the intention was the exploration of designating Berri Hospital as a major trauma centre for the region. Because of the implications that such a proposal would have for the other hospitals in the area, including Renmark Hospital, it was necessary to approach the subject diplomatically. I suspect this provides an explanation for the somewhat elliptical nature of the language in stage three of the working party report.

3.10. I have already referred to Exhibit C21d which is the Major Trauma Team Callout Protocols developed by the working party. They are clearly based upon documents developed and used by other major health services. Nevertheless, they appear to be well thought out documents which are adapted for conditions in the Riverland region. Clearly a considerable amount of careful thought was given by the working party to the development of this document and the report itself. The work is most commendable.

3.11. Dr Seglenieks gave evidence that after some initial enthusiasm for the proposals contained in the report things have not continued as he would have hoped. It appears that some of the original members of the working party who were integral to its preparation have moved on to other positions and the concept is in need of reinvigoration, to use Dr Seglenieks words. To some extent, staff turnover has seen the concept wither. Dr Seglenieks frankly conceded that with less than three general surgeons in Berri, one cannot maintain a twenty-four hour per day service. However,

he added that a service that covers two thirds of the available time is clearly better than none.

4. South Australian Ambulance Service policy regarding bypass

4.1. Dr Hugh Grantham

Dr Hugh Grantham gave evidence at the Inquest. He is the Medical Director of the South Australian Ambulance Service. His role encompasses both administration and a clinical component and he is available to provide guidance to ambulance officers in conjunction with two other well known trauma specialists, Doctors Griggs and Everest. In addition to this, Dr Grantham oversees clinical governance for the Ambulance Service and heads the Clinical Guidance Committee which is a standing committee of the board of the service. The committee includes rural general practitioners, trauma specialists, intensivists and cardiologists.

4.2. Dr Grantham confirmed that the Ambulance Service does have a policy relating to time critical or unstable patients. The policy was identified by both ambulance officers Hartwig and Johnson; namely that such patients are to be taken to the nearest hospital - where a hospital exists - in rural areas. Dr Grantham stated that policy of proceeding to the nearest hospital existed throughout the State, including the metropolitan area, prior to 1996, or shortly after. In that year, a separate policy was developed for the metropolitan area which would permit an ambulance to proceed directly to the nearest trauma centre, bypassing lesser hospitals, if and only if there was an intensive care paramedic aboard the ambulance. The designated trauma centres were the Royal Adelaide Hospital, Flinders Medical Centre and Women's and Children's Hospital. After approximately two years the metropolitan bypass system was assessed as having been successful in the sense that there was a discernable clinical benefit.

4.3. Dr Grantham stated that following the development of the metropolitan trauma service a second review was undertaken in relation to rural trauma services, in February 1996. This was the logical extension of the work in relation to the metropolitan area. The review in relation to trauma bypass in the Adelaide metropolitan area was admitted in evidence as Exhibit C22 in these proceedings. The review of trauma services in rural South Australia, February 1996 was admitted as Exhibit C22a. That document states at page 24 as follows:

> 'No hospitals in South Australia currently fulfil the criteria for recognition as Regional Trauma Services as defined by the Working Party on Trauma Systems or the National Road Trauma Advisory Council. None of them function as a regional hospital for care of major trauma at present, medical retrieval to Adelaide being used by all rural hospitals.'

4.4. The document proposes to designate rural hospitals in South Australia into two categories. Category A, which includes the Berri Hospital, includes hospitals which are larger than most regional hospitals and have a reasonable infrastructure in the sense of staff numbers, medical specialists, and other specialised services in comparison with the other rural hospitals. The document states that the Category A hospitals are better able to manage major trauma than the Category B rural hospitals, but that they do not have the facilities or infrastructure required to provide the services of a regional trauma service. It is interesting to note that the document states that the Berri Hospital is "modern and well equipped" and that its medical and nursing staff are enthusiastic about regional management of trauma. It is interesting that this view was expressed in 1996 and that the work of the Major Trauma Team Working Party which I have already referred to was carried out in 2001. Clearly the enthusiasm amongst medical and nursing staff referred to in the 1996 document has a history which has extended over a considerable period. To summarise, Category A rural hospitals are "able to provide a limited regional role for immediate management of specific injuries, able to provide prompt assessment, resuscitation, emergency surgery and stabilisation pending retrieval"[4]. Category B hospitals will be "capable of initial assessment and resuscitation of major trauma pending retrieval to an Adelaide Major Trauma Service"[5]. The document clearly designates Berri Hospital as a Category A hospital and Renmark Hospital as a Category B hospital.

4.5. Dr Grantham stated that the South Australian Ambulance Service has formulated its actions, plans and policies on the premise of categories A and B in Exhibit C22a. Dr Grantham stated that he accepted that a Category A hospital may be able to do more for a patient than a Category B hospital, but that, given that the paper did not recommend the establishment of a regional trauma centre in South Australia, the South Australian Ambulance Service maintains its policy in country regions of taking patients who are unstable or time critical to the nearest hospital regardless of whether it is a Category A or Category B hospital. Dr Grantham stated that a document

[4] Exhibit C22a, page 16
[5] Exhibit C22, page 16

entitled “Procedural Notice 1/97 – Rural Trauma Systems Response” which was admitted as Exhibit C22b in these proceedings, and which was promulgated on 11 April 1997, is the result of the review of rural trauma services. The document states in paragraph 9:

> ‘Trauma bypass is a Metropolitan Tool for trauma response and does not apply outside the Metropolitan area.’

In other words, this document is evidence of the South Australian Ambulance Service policy that outside of the metropolitan area, all time critical or unstable patients are to be transported by ambulance directly to the nearest hospital.

4.6. Dr Grantham stated that the key issue from his point of view is whether an ambulance should be going past a medical resource where it can obtain some basic control of shock and airway in a time critical or unstable patient. He pointed out that even a basic hospital facility is far superior to the conditions that would prevail by the roadside. Such basic things as proper lighting mean that even a basic facility affords opportunities not available on the ground. Dr Grantham stated that on his reading of the medical notes he did not think that Ms Robbins’ chances of survival were impaired by the decision to take her directly to Renmark Hospital. Dr Grantham was impressed with the standard of care provided by Dr Steyn. He stated that even in the metropolitan area, some patients will be taken directly to the nearest hospital in the event that the intensive care paramedic aboard the ambulance is really concerned about the patient’s airway. I do point out however that Ms Robbins’ airway did not appear to be a major concern for Dr Steyn upon her arrival at the Renmark Hospital. He noticed no sign of trismus, and this was the major concern from the point of view of Mr Johnson as regards Ms Robbins airway. In my opinion, had Ms Robbins been transported within the metropolitan area on the night in question she would almost certainly have been transported to a major trauma hospital even if that required bypassing a lesser centre.

4.7. Dr Grantham conceded that the transfer of Ms Robbins from Renmark Hospital to Berri Hospital did not fit with the intention of the trauma protocols and policies which have just been described. The intention of those documents is that the patient is taken to the nearest hospital for stabilisation purposes and is then retrieved to the metropolitan area. He stated that had Dr Steyn and the others involved adopted the option of retrieval, Ms Robbins may have succumbed before the arrival of the

retrieval team and if not, during transit to Adelaide. He commented that Dr Steyn and the other practitioners involved saw a laparotomy as a stabilising manoeuvre. He conceded that Renmark Hospital had limited blood supplies and commented that one unit of O negative blood is useful, but insufficient. Dr Grantham would have expected even a Category B hospital such as Renmark to have a "couple" of units of O negative blood. Dr Grantham conceded that blood availability should be a factor in grading the suitability of hospitals as trauma centres.

5. Expert overview – Professor Anne-Maree Kelly

5.1. A report dated 16 July 2006[6] was provided to the Court by Professor Anne-Maree Kelly, Emergency Physician. Professor Kelly is Fellow of the Australasian College for Emergency Medicine and holds the post of Professor of Emergency Medicine at Western Hospital, Footscray in Victoria.

5.2. Professor Kelly was asked to provide an overview of the treatment of Ms Robbins. Professor Kelly stated that in her opinion, given the resource limitations available at Renmark Hospital, Dr Steyn's care was of a very high standard. She was concerned that there was only one unit of O negative blood that was available at that hospital and stated that Ms Robbins needed considerably more than one unit during immediate resuscitation and the deficit may have affected her outcome. Professor Kelly stated that the total time that was spent at Renmark Hospital, 1 hour and 52 minutes, was entirely appropriate. She stated:

> 'It takes time to assess a patient as seriously injured as Miss Robbins and to perform the potentially life-saving procedures of intravenous access, endotracheal intubation and intercostal catheter insertion. Given the limitations with xray described by Dr Steyn, achieving this in just over an hour is very good. It also takes time to make the calls of consultation with the surgeon, organize ambulance and equipment for transfer and to load for transfer, given the lines and tubes that were now involved. To achieve all of this within 2 hours is again very good.'[7]

5.3. Professor Kelly commented that Dr Steyn's decision to transfer Ms Robbins was clearly a "last ditch effort" to get her to surgery which was her only chance of survival. Professor Kelly stated that Ms Robbins' chances of survival can be calculated using revised trauma score and injury severity score formulae that are

[6] Exhibit C24

[7] Exhibit C24, page 4

available at www.trauma.org/scores[8]. Professor Kelly stated that Ms Robbins' estimated probability of survival, based on initial condition as described by the ambulance record, was five percent. She stated that if the parameters on arrival at Renmark Hospital are used, the estimated probability of survival was twenty percent.

5.4. Professor Kelly stated that whatever chance Ms Robbins had depended on access to sufficient supplies of blood and a surgeon, neither of which was available at Renmark Hospital. She stated that had Ms Robbins been transferred direct to Berri Hospital she may have had a better chance. However, Professor Kelly also qualified this by noting that Ms Robbins may have died in the ambulance en-route to Berri Hospital. Professor Kelly states:

> 'If it has not already been addressed, I would recommend that hospitals and ambulance services in the region develop a trauma response plan that delivers patients with critical injuries to the hospital[s] best able to meet their needs, taking into account the risks associated with additional transfer times.'[9]

6. Conclusions

6.1. I find that Ms Robbins' chances of survival would have been significantly enhanced if she had been taken direct to Berri Hospital rather than to Renmark Hospital.

6.2. I find that in transporting Ms Robbins direct to Renmark Hospital ambulance officers Hartwig and Johnson were complying with South Australian Ambulance Service protocols and there can be no criticism of them for any of their actions on the night in question.

6.3. A question arises at to the appropriateness of the South Australian Ambulance Service protocol that patients be taken direct to the nearest hospital. However, as Dr Grantham pointed out, there are a number of countervailing factors which must be weighed into the balance in deciding whether to alter this policy. Those factors include the following:

- Time critical or unstable patients may be afforded life saving measures even at a basic Category B facility such as Renmark Hospital, depending upon their particular circumstances. It is true that Ms Robbins' case was one in which she may not have been so time critical as to be at risk from bypassing Renmark

[8] Public access to this information can be accessed through: www.trauma.org/index.php?/main/article/386/
[9] Exhibit C24, page 4

Hospital and travelling the extra distance to Berri Hospital (which would have involved another eleven minutes of travel).

- The facilities available on the roadside or on the ground for assessing a patient are vastly inferior to those available at even a Category B hospital.

- It may not be appropriate to expect ambulance officers at roadside crash scenes to make a critical decision in relation to a patient's status with a view to determining whether that patient should bypass the nearest hospital. For example, in the present case, this would have involved the ambulance officers appreciating that Ms Robbins had internal bleeding and that her airway, despite her trismus, was not sufficiently compromised that she might have been in danger of arresting during the extra time it would take to bypass the nearest hospital and travel to a hospital at which the surgery necessary to treat internal bleeding could be provided.

- Any such assessment would require a knowledge of the availability of blood supplies at the nearest hospital.

- Any such assessment would also involve a knowledge of the availability of surgical teams at the alternative destination hospital in the event of a bypass.

- No doubt there are many other relevant factors which may be relevant, but each such consideration would require an assessment by the ambulance crew at the roadside trauma scene. It may be expecting too much for ambulance officers to make such assessments.

6.4. I am reluctant to recommend that the South Australian Ambulance Service policy of transferring time critical or unstable patients to the nearest hospital in rural regions should be changed to require some form of assessment by ambulance officers as to the relative benefits and risks that might be associated with bypassing such a hospital in favour of another, bearing in mind the vagaries I have set out. The present protocol has the virtue of being simple and easy to follow, which is an advantage in an emergency when time is of the essence. However, I do think that the excellent work of Dr Seglenieks and the other members of his trauma management working group should be reinvigorated. It has now been more than ten years since the review of

trauma services in rural South Australia[10]. Perhaps it is timely for the matter to be revisited in light of developments in the retrieval systems available in South Australia since that time. For example, the rescue helicopter service has undergone a number of changes during that period. However, I do not consider it necessary to make any recommendations to that effect. No doubt the Minister for Health and the Department of Health will consider these findings and the desirability of a reconsideration of rural trauma services at this time.

6.5. I do however consider it appropriate to recommend pursuant to section 25(2) of the Coroner's Act 2003 that the Minister of Health consider these findings, and conduct a review of the systems for stocking O negative blood in rural hospitals generally, with a view to considering whether existing stocking practices are adequate. They certainly were not adequate at Renmark Hospital on the night of Ms Robbins' death.

[10] Exhibit C22a

Key Words: Ambulance Service; Country areas - medical services

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

Seal the 7th day of February, 2007.

State Coroner

Inquest Number 35/2006 (3471/2003)