

IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2011 2565

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)

Section 67 of the Coroners Act 2008

Inquest into the Death of: KELLY MAREE RICHARDS

Delivered On:	14 April 2016
Delivered At:	Coroners Court of Victoria 65 Kavanagh Street Southbank, Melbourne 3000
Hearing Date:	23-27 June 2014 and 23-27 March 2015
Findings of:	IAIN TRELOAR WEST, DEPUTY STATE CORONER
Representation:	Mr Abhi Mukherjee for the Richards family Ms Patricia Riddell for Bass Coast Regional Health Mr Dugald McWilliams for Gippsland Pathology Ms Sara Hinchey for Ambulance Victoria Ms Deborah Foy for the Royal Melbourne Hospital Mr Sean Cash for Dr Jason Nebbs Ms Fiona Ellis for Dr Ian Nguyen Ms Sharon Keeling for Dr Timothy Chittleborough Ms Megan Fitzgerald for Dr Woun-Eng Ang
Police Coronial Support Unit	Leading Senior Constable Amanda Maybury

I, IAIN TRELOAR WEST, Deputy State Coroner having investigated the death of KELLY MAREE RICHARDS

AND having held an inquest in relation to this death on 23-27 June 2014 and 23-27 March 2015
at MELBOURNE

find that the identity of the deceased was KELLY MAREE RICHARDS

born on 13 January 1982

and the death occurred on 13 July 2011

at The Royal Melbourne Hospital Victoria, 300 Grattan Street, Parkville Parkville 3050 Victoria

from:

1 (a) EXSANGUINATION POST TUBAL LIGATION PROCEDURE

in the following circumstances:

1. Kelly Richards was a 29-year old female who resided in Wonthaggi with her husband, Mr Jason Richards and their 4 young children.
2. On 2 May 2011, Mrs Richards attended the private rooms of General Surgeon Mr John Crellin for assessment prior to an elective laparoscopic tubal ligation. Aside from the four previous births, Mrs Richards' relevant medical history included a cholecystectomy and dilation and curettage for a retained placenta. She also suffered from asthma.
3. On 12 May 2011, a pre anaesthetic risk assessment was undertaken by General Practitioner Anaesthetist Dr Leon Malzinskas. He found Mrs Richards to be looking well and believing there would be no anaesthetic risks, assessed her as ASA (American Society of Anaesthetists) 1.
4. The surgery was scheduled for 13 July 2011 and was to be performed at the Wonthaggi Hospital, where Mrs Richards was admitted that day.

The Surgery:

5. At approximately 9.15am, Mrs Richards was anaesthetised and the procedure commenced at 9.30 am. A small sub umbilical incision was made through the skin and rectus sheath into which Mr Crellin introduced a Veress needle into the peritoneal cavity for the purpose of insufflation. Following insufflation of the peritoneal cavity and removal of the Veress needle, the laparoscopic camera was inserted via a trochar sheath to identify the uterus, fallopian tubes, ovaries and the abdominal wall.
6. A suprapubic incision was then made using a second trochar, with a blunt probe being introduced for use in moving and identifying structures. At this time the laparoscopic

camera became displaced requiring the reinsertion of a 5mm trochar with a sharp obturator to assist in repositioning the camera.

7. Following trochar removal after the camera was repositioned, the pre-loaded Filshie clip applicator was introduced and the fallopian tubes were identified. Mr Crellin made two to three attempts to engage the Filshie clip onto the left fallopian tube before the clip dropped into the peritoneal cavity.
8. After clip retrieval and mechanical difficulty with the diathermy machine, the guarded diathermy probe was introduced but became engaged with the omentum which was displaced by shaking of the probe.
9. The left and right fallopian tubes were identified, however, Mr Crellin does not believe he activated the probe prior to vision being lost due to catastrophic haemorrhage which occurred at approximately 9.55am.
10. Mr Crellin immediately progressed to open laparotomy via Pfannenstiel incision and observed torrential bleeding issuing from the right pelvis before requesting assistance to theatre.

Response and Resuscitation:

11. Following request for surgical assistance, General Practitioner Obstetrician Dr Whitehouse arrived in theatre shortly thereafter. During this time, the damaged site was not located due to the torrential bleeding.
12. Subsequently, the bleeding was described by Mr Crellin to be *'fairly well controlled by packing, but it recurred.'* Mr Crellin applied manual pressure on the abdominal aorta and attempted soft clamping of the internal iliac artery, with no effect. Mr Crellin found that the only technique that appeared to have any impact on the bleeding was manual pressure on the packed abdomen.
13. Due to the extent of the bleeding Mr Crellin had trouble identifying the individual blood vessels. The scrub nurse in theatre, RN Debra Thow, confirmed *'we were unable to see any single blood vessel which was squirting blood which could be clamped. There seemed to be bleeding from everywhere.'* The pelvis and abdomen were packed, and the wound loosely closed.
14. At approximately 10.00am, Dr Malzinskas requested pathology to provide packed O Rh-negative red cell concentrate. Dr Malzinskas was unable to obtain intravenous access for cross matching and relied upon a previous cross-matched sample of blood from Mrs Richards' last pregnancy. There were no clotting factors available, fresh frozen plasma

(FFP), cryoprecipitate or platelets. However, Wonthaggi Gippsland Pathology provided six units of O negative and Wonthaggi Hospital, 2 units of O negative packed red blood cells.

15. At 10.41am Wonthaggi Hospital requested the assistance of Adult Retrieval Victoria (ARV).

Resuscitation and Retrieval Transfer to the Royal Melbourne Hospital:

16. At 11.00am, Dr Malzinskas telephoned La Trobe Valley Hospital in Traralgon and requested the transport of FFP. Cryoprecipitate and platelets were not requested as he was aware the hospital did not stock these blood products. The FFP was sent by taxi from Traralgon to Wonthaggi Hospital. The FFP needed to be thawed at La Trobe Valley Hospital, as Wonthaggi Hospital did not have the required thawing bath. The time for thawing and transport was estimated to be approximately 2-3 hours. If platelets were ordered from the Red Cross Bank in Melbourne, the time for delivery to Wonthaggi Hospital was estimated to be up to 3 hours.
17. Resuscitative efforts continued by Dr Malzinskas until the ARV retrieval doctor, Dr Nguyen, arrived to take over at 12.25pm. When he arrived in theatre there was blood oozing from all intravenous sites, Mrs Richards' nose and the closed abdominal wound. Mrs Richards was hypothermic, hypotensive and in a state of coagulopathy.
18. Given the major ongoing blood loss from the wounds and in an attempt to stabilise her, Dr Nguyen requested Mr Crellin to re-open the abdomen for re exploration prior to transfer. This occurred at 12.43pm and he found active bleeding in the lower right pelvic region, with Mr Crellin replacing all abdominal packs. The abdomen and pelvis was packed with gauze and a pressure splint applied.
19. The FFP arrived just prior to departure from Wonthaggi Hospital, however was not administered, as it was completely frozen. Intravenous inotropic support was commenced to maintain blood pressure. During the ARV flight, which left Wonthaggi Hospital at 13.44pm on the way to the RMH, Dr Nguyen administered additional blood products.

Resuscitation Measures at RMH:

20. At 14.17pm, Mrs Richards arrived at the RMH Emergency Department and was subsequently transferred to the Intensive Care Unit (ICU) with her condition being recognised as needing urgent surgical intervention and accordingly, assistance was called for.
21. On this day, Dr Vasey was a 3rd year Surgical Registrar in the surgical training program working with Dr Chittleborough, a junior 1st year Surgical Trainee. Both Dr Vasey and Dr Chittleborough simultaneously arrived in ICU and upon arrival at Mrs Richards' bed, Dr

Vasey stated it was obvious the clinical situation was catastrophic, with cardiopulmonary resuscitation in progress.

22. As the most senior surgical person present, Dr Vasey was requested by the ICU consultant, Dr Hunt-Smith, to re-open the Pfannenstiel incision and perform an immediate laparotomy. Aside from the brief handover from Dr Hunt-Smith during his efforts to coordinate the resuscitation, Dr Vasey had not received any previous clinical information regarding Mrs Richards. Therefore, neither Dr Vasey and Dr Chittleborough, nor any members of the surgical unit working on 13 July 2011 had received any formal medical handover or forewarning of the planned transfer of Mrs Richards from Wonthaggi Hospital to the RMH in a critical condition.
23. At the inquest, Dr Vasey expressed concern about the absence of notice to the surgical team of Mrs Richards' imminent arrival at RMH. As a result, she needed to reopen the surgical incision in the ICU to locate the source of the bleeding which she thought might have been easier in Theatre. Nevertheless, she stated: *'Having said that, all I really needed was a pair of scissors in my hand which is what I had.'*¹
24. Dr Vasey quickly re opened the Pfannenstiel incision using basic surgical instruments that were available in the ICU. On entering the abdomen she encountered multiple blood soaked surgical packs, which were floating in the large amount of clotted blood and bowel loops in the abdomen. After removing the packs, she was able to identify the bleeding source as the right iliac vessels. Once the bleeding source was identified, she applied manual compression just below the aortic bifurcation. The manoeuvre provided temporary control of the bleeding and subsequently spontaneous cardiac output returned.
25. Whilst Dr Vasey performed the laparotomy, frenetic resuscitation efforts were going on coordinated by Dr Hunt-Smith. There were problems getting central intravenous access - this was achieved on return of spontaneous cardiac output. Immediately after getting control of the bleeding and central access to allow delivery of inotropes, Mrs Richards was wheeled to the operating theatre whilst Dr Vasey knelt on the trolley with her hand in the abdomen continuing to compress the iliac vessels.
26. A surgical team was hastily assembled, based purely on who was available at the time. A Cardiothoracic Surgeon, Mr Phillip Antippa, who was walking along the theatre corridor, came to assist Dr Vasey. He scrubbed up briefly and took over from Dr Vasey in occluding the iliac vessels whilst she extended the incision with a midline laparotomy. A small hole in

¹ T 648

the sigmoid colon was created on opening the abdomen. This was oversewn with a suture to avoid contamination.

27. According to Dr Vasey, it was clear a vascular surgeon was required. Vascular surgeon Mr Tim Wagner was operating in the adjoining theatre and he was requested to leave his current procedure to attend to urgently assist. Mr Wagner, together with the on call Consultant General Surgeon Mr Julian Choi, Dr Vasey, and Dr Chittleborough proceeded with the laparotomy in an attempt to get control of the massive bleeding from the right iliac vessels.
28. Injury identified in the right iliac vein was sutured closed and an additional hole found in the right iliac artery, was repaired using a vein patch. Despite these attempts, Mrs Richards continued to bleed because of a profound coagulopathy. The iliac vessels were then formally ligated.
29. RWH Consultant Gynaecologist, Dr Ang, arrived in theatre sometime after the laparotomy commenced having earlier participated in an ARV conference call regarding Mrs Richards' management following the haemorrhage. She performed a B-lynch haemostatic suture to the uterus and noted no significant bleeding from the uterus intra-operatively. A fibroid was also removed. Dr Ang then left the theatre.
30. The anaesthetic team co-ordinated a massive transfusion effort, that included haematology advice in theatre and a transoesophageal echocardiogram in situ to aid with resuscitation efforts. Despite the surgical and anaesthetic efforts, Mrs Richards continued to have ongoing bleeding due to coagulopathy. The pelvis was packed and an abdominal vacuum dressing was applied but Mrs Richards continued to bleed and the situation was futile. At approximately 8.30pm, Mrs Richards was transferred from theatre back to the ICU for the family to say goodbye and supportive care was provided. Mrs Richards subsequently died at 9.09pm.

Autopsy:

31. An autopsy was performed by Forensic Pathologist Dr Paul Bedford from the Victorian Institute of Forensic Medicine on 15 July 2011. Dr Bedford found evidence of repair to the proximal right external iliac artery and also evidence of repair to the right external iliac vein. In addition, he observed further evidence of recent surgery with sutures to the distal sigmoid colon and also observed some duskiness of the large bowel, but no evidence of definite ischaemia. Dr Bedford concluded the cause of death to be exsanguination following a tubal ligation procedure.

Coronial Investigation:

32. The investigation of Mrs Richards' death commenced with an examination of her medical record and the obtaining of statements from those involved throughout her management. An expert opinion was also obtained and the case was referred to the Coroners Court Health and Medical Investigation Team (HMIT)² for review. They considered all medical materials available on file and were also provided with additional information from an internal review conducted by Wonthaggi Hospital, further information provided by the surgeon Mr Crellin and Wonthaggi Hospital theatre staff. The expert opinion was provided by Dr David Bird.³
33. The HMIT requested additional information from Wonthaggi Hospital concerning the issues identified and recommendations resulting from an internal review of Mrs Richards' death. The Chief Executive Officer Ms Lea Pope, provided HMIT with details of the review with the important issues being; theatre equipment, internal emergency procedures, accessibility to surgical support and the development of a protocol for massive blood transfusion to enable timely provision of blood products.

Inquest:

34. As a number of issues remained unresolved, an inquest into the death was held at the Coroners Court on 23-27 June 2014 and 23-27 March 2015. The following witnesses were called and gave evidence:
- a. Dr John Crellin, General Surgeon
 - b. Dr Paul Bedford, Specialist Pathologist
 - c. Dr Leon Malzinkas, General Practitioner Anaesthetist
 - d. Ms Debee Thow, Registered Nurse
 - e. Dr Jason Nebbs, Retrieval Co-ordinator, ARV
 - f. Dr Catarina Ang, Consultant Gynaecologist, RWH
 - g. Dr Pirani, Intensive Care Registrar, RMH
 - h. Dr David Bird, General Surgeon, The Northern Hospital

² The role of the Health and Medical Investigation Team (HMIT) is to assist the Coroner's investigation into the nature and extent of deaths which occurred during the provision of healthcare, and identify potential system factors in healthcare related deaths. HMIT personnel comprise of practising Physicians and Clinical Research Nurses who draw on their medical, nursing and research experiences, skills and knowledge to independently evaluate clinical evidence for the investigation of reportable healthcare deaths and to assist in identifying remediable factors that may assist in prevention and risk management in health services settings.

³ Mr Bird is a general surgeon and Fellow of the Royal Australasian College of Surgeons. He has a Master's degree in surgery and has experience in rural environments.

- i. A/Professor Erica Wood, Haematologist and Transfusion Specialist, Monash Medical Centre
- j. Dr Carolyn Vasey, General Surgical Registrar, RMH
- k. A/Professor Rodney Judson, Surgeon and Director of Surgical Services, RMH
- l. Dr Timothy Chittleborough, Senior Surgical Registrar, RMH
- m. Dr Ian Nguyen, Anaesthetic Registrar, on secondment to ARV from Austin Hospital
- n. Dr Edward Levin, Haematologist, Dorevitch Pathology
- o. Ms Veronica Jamison, Chief Executive Officer, Bass Coast Health

Issues Explored at Inquest:

35. The issues explored included the following;

- a. The risk assessment for laparoscopic surgery given Mrs Richards' BMI;
- b. Internal injuries sustained during surgery causing torrential bleeding
- c. Failure to control the bleeding
- d. Blood transfusion response system at Wonthaggi Hospital
- e. Communications between the Hospital and ARV about the final destination for Mrs Richards during her transfer to RMH
- f. Internal communication at RMH regarding the impending arrival of a surgical trauma case.

Assessment for Laparoscopic Surgery:

- 36. Bass Coast Regional Health's policy regarding BMI (Body Mass Index) dictated that persons with a BMI of 40 or above were not suitable candidates for surgery at Wonthaggi Hospital.
- 37. There was no record of Mrs Richards' BMI on the booking request form completed by the surgeon, the pre anaesthetic assessment form, or the anaesthetic record form. According to Wonthaggi Hospital, in July 2011 there was no place in the medical record to document height and weight, therefore the BMI was not calculated or documented.
- 38. Mrs Richards' pre surgery weight was documented on the pre-operative theatre checklist form to be 98 kilograms. Due to her weight (circled obese on anaesthetic chart), a pre anaesthetic risk assessment conducted by Dr Leon Malzinkas resulted in a change in risk status (from ASA 1 determined by him on the 12 May 2011, to ASA 2 on the 13 July 2011).

39. At autopsy, Mrs Richards' height was measured at 1.65 metres and based on the pre surgery weight of 98 kilograms, her BMI would have been 36kg/square metre, placing her in the obese range but nevertheless, suitable for the procedure to be undertaken at Wonthaggi Hospital.
40. Despite there being no evidence of awareness as to what Mrs Richards' BMI was at the time the procedure was undertaken, I am satisfied her weight height/ratio did not prohibit surgery being undertaken at Wonthaggi Hospital.

How were the Internal Injuries Sustained?:

41. At the outset it is appropriate to indicate that I accept the submission made on behalf of Mr Crellin, that the iatrogenic injury which resulted in the haemorrhage is limited to the damage to the right external iliac artery, and possibly the right external iliac vein. Other injuries seen at autopsy relate to the post-haemorrhage interventions.
42. The investigation found that laparoscopy is a very common procedure in gynaecology as it enables the direct visualisation of the pelvic and abdominal organs with a camera mounted on a long thin tube called a laparoscope. To perform laparoscopy, gas is inserted into the abdomen. Although usually safe, iatrogenic injury is a rare but known complication, with a small group of patients suffering life-threatening injuries to the blood vessels (0.9 per 1000 procedures) and the bowel (1.8 per 1000 procedures).⁴ These complications associated with laparoscopy are often related to entry. Other less serious complications can also occur, such as postoperative infection, subcutaneous emphysema and extra peritoneal insufflation.⁵
43. With respect to exsanguination causing death in circumstances of tubal ligation, both Dr Bedford and A/Professor Erica Wood stated they had never seen it in their more than two decades of practice.
44. Evidence was given of Mr Crellin being a highly experienced general surgeon and at 69 years of age, was close to retiring at the time of the incident. He had performed many hundreds of tubal ligation procedures laparoscopically over a period of approximately 35 years. Nevertheless, whilst Mr Crellin acknowledges he caused the iatrogenic injuries, he could not explain how they occurred.⁶
45. The following are the competing hypotheses regarding the likely cause and timing of the injury to the right external artery and possibly vein:
 - o During the 'set up' phase by way of Veress needle.

⁴Ahmad, G, Duffy, JMN et al 2010. Laparoscopic Entry Techniques (Review)). The Cochrane Collaboration.

⁵ Extra peritoneal insufflation is one of the most common complications of laparoscopy.

⁶ T47/17-19

- During the 'set up' phase by way of first blind insertion of the trochar.
 - During the blind insertion of the trochar when the laproscopic camera became dislodged.
 - During diathermy.
46. As previously indicated, Mr Crellin made a sub umbilical incision through the skin and rectus sheath to dissect down to the linea alba and incise it under direct vision. A Verres needle was inserted for the purpose of insufflation. According to Dr Bird, the court appointed independent surgical expert, this method allows the Verres needle to be inserted with very little force and resultant travel, into the peritoneal cavity. The method involves pushing the needle through the linea alba as well, which requires more force and leads to more uncontrolled, 'blind' travel as the needle 'pops' through under force into the peritoneal cavity. He further stated, this is how underlying structures, such as large blood vessels, are at risk of being damaged at the time of initial entry. Gas is then introduced through the Verres needle until adequate abdominal distension has occurred. The needle is removed and a sharp trochar is inserted, once again blindly, into the peritoneal cavity. The laparoscope is then inserted and other working ports inserted as required under direct vision.
47. According to Dr Bird, the sharp trochar insertion, which follows insufflation with the Verres needle, is subject to the same problem of a 'blind' and forced introduction into the peritoneal cavity. In a 1999 study, it was estimated that 39.8% of laparoscopic injuries during the set-up phase are caused by the Verres needle, 37.9% by the 'blind' primary trochar and 22% during the insertion of working ports⁷. The latter injuries occur during insertion of trochars under the direct vision provided by the laparoscope.
48. Dr Bird stated that his surgical experience has shown that a working port, especially when introduced quickly and with significant force, is quite capable of travelling through the abdominal wall and into the retro peritoneum or adjacent structures, such as the sigmoid colon, before the surgeon introducing the trochar can react and stop the introducing force.
49. Trochars are available in either disposable or non-disposable form, with sharpness being an aid to insertion. Dr Crellin, in his supplementary statement,⁸ described the trochar he used in the surgical procedure as a non-disposable, non-optical type. He did not believe sharpening had ever been performed as he understood there was no mechanism to do so. While it can be concluded that a blunt trochar requires greater pressure to insert, there is no

⁷ Lin, P and Daniel Grew. March 1999. Complications of Laparoscopy. Obstetric and Gynaecology Clinics. Volume 26. Number 1.

⁸ Exhibit 2

evidence in this case as to the instrument's degree of sharpness, as it was not available for inspection. Nevertheless, Dr Crellin did not recall any unusual or undue difficulty in using the instrument.

50. From the autopsy and histological evidence, Mr Crellin initially believed that the injuries were caused by the diathermy probe. *"The evidence suggests to me that the blood vessel injury was caused by diathermy probe. I am unable to explain how that occurred because I believe I had the tip of the probe under visualization at all times. I do not believe I had activated the probe prior to commencement of the haemorrhage. I did not visualize the probe in the vicinity of major blood vessels and I did not push it into the deep tissue of the pelvis. I do not know what caused the haemorrhage to commence."*⁹
51. Dr Bird explained why a vessel injury may not be captured on the theatre video screen. He commented that this was probably due to, *'...a combination of the video camera technology, the television screen technology, and the camera operator reaction time in following the tip of the trochar as it traverses the laparoscopic field of view. It is occasionally out of the field of view which means that it is quite possible for the tip of the trochar to inadvertently damage viscera without the event being captured on the television screen.'*
52. Therefore, according to Dr Bird, it is possible for the tip of the trochar to enter the retro peritoneum and come back out again without this being seen on the video television monitor. This is especially the case if the distance between the trochar entry point and underlying structures is small, as often occurs in obese or very thin people. In such cases, the trochar would appear to have been safely inserted, when inadvertent vessel damage occurs, and therefore not suspected. The chance of this happening is much reduced by a careful and controlled trochar insertion, during which the tip is at all times well seen.
53. Support for Mr Crellin's initial belief that the injury was caused by the diathermy probe is found in the evidence of RN Thow. She stated that she recalled the diathermy hook being asked for and it being placed inside the abdomen through the trocar. *"Mr Crellin then commenced to diathermy the fallopian tube for a second or two and then the screen of the monitor went red, indicating that the area had filled with blood."*¹⁰ She stated she could clearly remember the diathermy process commencing as the machine lights up and makes a

⁹ Exhibit 1, p 7

¹⁰ T185

distinctive sound. Her first reaction to what she saw, was a “*sinking gut feeling because that’s a major haemorrhage.*”¹¹

54. Her evidence is consistent with Dr Malzinskas’ observations as stated in his evidence and in his statement. “*At the time of the commencement of the bleeding, I was situated behind the drapes and was looking at the monitor. The tip of the diathermy probe was in view and at no time did I see the probe get pushed down into deeper tissues where the large blood vessels are located.*”¹²
55. Despite Nurse Thow’s and Dr Malzinskas’ evidence of a temporal relationship between diathermy and observation of the haemorrhage, it cannot be concluded that the diathermy probe caused the damage to the artery. Dr Bird explained that an arterial bleed in the retroperitoneal space can be contained for an indeterminate length of time, possibly up to 10 - 15 minutes, before rupturing through the peritoneal cavity.¹³
56. Dr Bird opined, “*that the injury to the right external iliac artery occurred from the Verres needle or sharp trochar insertion during the set-up phase of the laparoscopy. I cannot be at all dogmatic about which insertion caused the injury but heavily favour, because of the timing of the first significant haemorrhage, the injury occurring during the re-insertion of the camera trochar.*”¹⁴
57. In Dr Bird’s opinion, “*the damage to the right external iliac artery did not occur from the diathermy probe, as it is apparent that what was being diathermied was the right fallopian tube and not the artery, which is a fixed, retroperitoneal structure and in no way resembles a fallopian tube. I believe the small amount of diathermy damage to the right external iliac artery mentioned in the autopsy report probably occurred during salvage attempts after the haemorrhage had commenced.*”¹⁵
58. Dr Bird remained of the view that the damage to the artery happened during one of the trocar insertions and it remained a matter of conjecture as to which one.¹⁶ As previously stated, Mr Crellin is unable to explain what caused the haemorrhage to commence. Clearly, however, the injury to the internal iliac artery and possibly the internal iliac vein was caused during surgery performed by him. Nevertheless, as speculation can never be a basis for making findings of fact, it is not possible on the evidence to definitively determine the precise cause and timing of the injury.

¹¹ T192-193

¹² Statement p 5

¹³ T533-534

¹⁴ Exhibit 16, p5: Expert opinion of Dr Bird.

¹⁵ Exhibit 16, p 4

¹⁶ T536

Control of Bleeding:

At what point was Ms Richards' haemorrhage irreversible and her situation irretrievable?

59. Dr Malzinkas told the inquest, "*I believe that Ms Richards' situation became irreversible within the first 30 to 60 minutes of the commencement of the haemorrhage. She was in irreversible haemorrhagic shock and this was starting to be complicated by dilutional coagulopathy which then became a DIC (disseminated intravascular coagulopathy). This was uncontrollable and fatal. I do not believe that the delays associated in obtaining blood and blood products had any bearing on the ultimate outcome. The real issue was early control of the bleeding and this could not be achieved.*"¹⁷ This evidence was accepted by Dr Bird.¹⁸ In addition, he agreed with the general proposition that if the source of the bleed cannot be identified and stopped, no amount of blood or blood products administered to a patient will result in their survival.¹⁹
60. The irretrievability of Mrs Richards' coagulopathy was also supported by other expert evidence with Professor Wood stating that within an hour or two of the initial bleed, Mrs Richards was developing a coagulopathy which comprised both dilutional aspects and then subsequently disseminated intravascular coagulopathy.²⁰ Further supporting evidence of Mrs Richards' fate being determined by the time she left Wonthaggi Hospital comes from Professor Judson,²¹ Dr Vasey²² and Dr Ang.²³
61. The weight of evidence satisfies me that as Mrs Richards' haemorrhage proved to be unmanageable,²⁴ her condition became irreversible whilst at Wonthaggi Hospital and in all probability, at some point between 30 minutes and 60 minutes after the bleeding commenced.

Surgical Response to Bleeding:

62. The Victorian Surgical Consultative Council (VSCC) guidelines for the management of vascular injuries at laparoscopy state in part; "*Major injury with bleeding recognised during or just after laparoscopy is usually treated by rapid laparotomy, control by direct pressure, arterial proximal clamping or venous firm packing. Frenzied attempts to clamp or suture through torrential bleeding tend to worsen the damage. Repair is then by*

¹⁷ Statement p5-6

¹⁸ T493

¹⁹ T521

²⁰ T577-578

²¹ T795

²² T696-697

²³ T380

²⁴ T23

monofilament suturing or urgently involving a surgeon with suitable vascular experience. If none is available, abdominal packing and closure ('damage control surgery') and judicious resuscitation are recommended before transfer to an appropriate centre."²⁵

63. On behalf of the family it was submitted that Mr Crellin showed sub-optimal surgical skill in dealing with Mrs Richards' torrential bleeding. However, Mr Crellin stated that almost immediately on commencement of the haemorrhage it was evident to him that it was major and that immediate laparotomy was indicated. His rapid response of open laparotomy in an attempt to locate the source of the bleeding was appropriate and indicated by the VSCC guidelines. He found torrential bleeding issuing from the right pelvis, however as he was unable to see its source, he immediately applied packing in order to stop the bleeding. On being asked whether he considered 'trying to look a bit harder before packing,' Mr Crellin stated, "*The nature of the bleeding is such that it's an immediately life threatening situation with torrential bleeding and it is not possible or reasonable to do anything other than pack the area off to try to stop the bleeding.*"²⁶ Neither Dr Bird nor Dr Vasey, who subsequently located the damaged vessel, were critical of this response.
64. Mr Crellin had undertaken an immediate laparotomy by Pfannenstiel incision rather than midline; a matter of personal preference about which Dr Bird was not critical.²⁷ In addition, Dr Bird was not critical of Mr Crellin failing to find the source of the bleeding.²⁸ While Dr Bird indicated that ideally the aorta should be clamped in these circumstances, Dr Crellin's evidence had been that he had difficulty in identifying vessels due to the extent of bleeding and again, Dr Bird found that understandable. He stated that he did clamp what he thought was the internal iliac artery, however, it appeared to have little effect on the bleeding and he was unable to visualise any other vessels.²⁹ Further, Dr Bird agreed that where there is a failure to directly control the artery, the '*logical next step*'³⁰ is to pack the abdomen and transfer to an appropriate centre. When challenged as to why he did not persist in efforts to locate the source, Dr Crellin stated; "*Efforts to find the source of haemorrhage are contraindicated because one has to remove the packs and then the bleeding will be such as you can't see – you can't see to find the origin of it.*"³¹

²⁵ Inquest Brief p 375

²⁶ T17

²⁷ T522

²⁸ T526

²⁹ T526; Statement p6

³⁰ T527

³¹ T51

65. It is clear Mr Crellin's response was consistent with the VSCC guidelines and was supported by the evidence of Dr Bird, with the evidence indicating that an appropriate response involved:
- a. Convert to laparotomy.
 - b. Attempt to identify the source of the bleed.
 - c. If the source is identified, attempt to stem the bleeding by way of repair.
 - d. If the source cannot be identified, pack the abdomen and arrange transfer to a tertiary centre.
66. When asked during the course of evidence, "*What are the risks of keeping a patient in these circumstances in theatre and opened up whilst trying to find the source of the bleed and not having all blood products available that you perhaps need?*," Dr Bird responded, "*It's a very difficult situation to be in if you haven't got enough blood products or surgical equipment necessary or whatever the scenario is and once you've made the best attempt that you can do in that situation then the best thing is what happened, is to close – close up the patient and transfer to a higher centre.*"³² And following identification of the vessel at RMH, "*The scenario at the Royal Melbourne operating theatre is a lot different to Wonthaggi, you can tell by the number of people there, the equipment there.*"³³
67. The evidence satisfies me that Dr Crellin's response to the haemorrhage was appropriate and fell within the Victorian Surgical Consultative Council guidelines for the management of vascular injuries at laparoscopy.

Blood Transfusion Response:

Background:

68. National blood stock inventories are determined by an agreement between the blood product supplier, the Australian Red Cross Blood Service, and the local blood bank, which in the situation of Wonthaggi Hospital is the Gippsland Pathology Service (Division of Dorevitch Pathology). The inventories are based on historic usage, taking into account population growth trends and contingencies.
69. In 2011, it was common for hospitals such as Wonthaggi Hospital and facilities such as Gippsland Pathology to not stock clotting products. This is no longer the case at Wonthaggi Hospital.

³² T493

³³ T521

70. Prior to Mrs Richards' procedure, no pre-operative blood sample was taken for a 'cross-matched group and hold' by the anaesthetist Dr Malzinskas. According to his statement, Dr Malzinskas commented that 'group and hold' to determine blood type is not a routine procedure performed by him on women prior to laparoscopic tubal ligation surgery.³⁴ Once the bleeding commenced in theatre, Mrs Richards' blood type was determined from a historical record located in her last pregnancy record. The historical blood type was relied upon, as Dr Malzinskas appropriately decided that to obtain and perform a reliable cross match would add a delay of another 30 to 45 minutes.
71. In addition, cross-matching the blood type was difficult due to the inability to obtain a second intravenous line of entry. Once obtained, the blood was already contaminated by transfused blood and also diluted by the infusion of saline fluids.³⁵ Given the dire emergency in this case, I am satisfied Dr Malzinskas should not be criticised in calling for un-crossed matched blood products, doing so with his knowledge of Mrs Richards and her multiple prior admissions.

Availability of Blood Products:

72. It is necessary to examine the availability and timely delivery of blood and blood products to Wonthaggi Hospital and whether these issues impacted on the tragic outcome. The following sequence of action taken in relation to the blood transfusion is uncontradicted:
- 10.00 am: Request for the emergency O Rh (D) negative blood.
 - 10.15 am: Delivery two units emergency O Rh (D) negative blood.
 - 10.40 am: Telephone request for four units O Rh (D) negative blood.
 - 11.00 am: Issued four units O Rh (D) negative blood – uncrossed matched.
 - 11.09 am: Specimen and request for eight units of uncrossed matched blood.
 - 11.20 am: Conversation between scientist and Dr Malzinskas regarding group specific blood based on historical records.
 - 11.30 am: Issued five units of A Rh (D) positive – uncrossed matched blood and three units of A Rh (D) negative – uncrossed matched blood.
 - 11.32 am: Specimens and request for clotting factors.
 - 12.20 pm: Telephone request for four units of blood.
 - 12.30 pm: Issued four units of O Rh (D) negative – uncrossed matched blood.
 - 12.45 pm: FFP arrived from Traralgon unfrozen.

³⁴ Statement p1

³⁵ T125

73. It is clear from the timeline that there were delays following the initial delivery at 10.15 am. With the request at 11.09am there was a reluctance from the scientist in delivering uncrossed blood other than O negative blood, which is the universal donor. This is understandable as the giving of the wrong blood can have fatal consequences. The reluctance necessitated Dr Malzinskas speaking with the scientist and thereafter the delivery occurred within ten minutes. Dr Malzinskas took full responsibility for any negative consequences flowing from this request and no criticism should be made of the scientist in the circumstances. In addition, there is no evidence to suggest that uncrossed matched blood was in any way causative of Mrs Richards' death.
74. The evidence does not support a finding that delay was causative of Mrs Richards' death. The evidence of both Dr Malzinskas and Dr Bird was that by the time of the second request for blood at 10.40am, Mrs Richards' condition was potentially irretrievable and by the time of delivery at 11.00am, more likely than not her condition was irretrievable. To speculate otherwise is not a basis for making findings of fact.
75. Transportation of the FFP took an hour and ten minutes to travel by road the 120 kilometres from Traralgon and arrived still frozen. Whilst Dr Malzinskas did not ask that it be thawed for immediate use,³⁶ Gippsland Pathology Service conceded that there was an error in providing it in frozen form. They were aware that Wonthaggi Hospital did not have a thawing bath on site and that ordinarily FFP would be thawed and transported in useable form.³⁷ Nevertheless, it cannot be concluded that this omission adversely impacted on the tragic outcome.

Mrs Richards' Transfer to RMH by ARV:

Coordination:

76. Adult Retrieval Victoria is responsible for the coordination of adult emergency retrieval of patients who are time critical or critically ill and in addition, to provide clinical advice relating to management of such patients.³⁸ Ideally this takes place by clinician to clinician discussion such that the ARV clinician is fully apprised of the seriousness of the situation and the presenting issues. This in turn determines how ARV treats the priority of the transfer, selection of team and transport to be sent and selection of ultimate destination. The decision as to the most appropriate destination for Mrs Richards was made by the ARV

³⁶ Statement para 26

³⁷ Dr Levin, T1021

³⁸ ARV Medical Reference Manual (Exhibit 23)

clinician in consultation with the ARV director. The RMH was deemed appropriate as it is a tertiary level hospital, has a helipad on site and is co-located with the RWH.³⁹

77. The key ARV employees involved in Mrs Richards' retrieval were Dr Nebbs, the ARV clinician, Dr Nguyen, the retrieval clinician and to a lesser degree, Dr Marcus Kennedy, the Director of ARV.
78. Dr Nebbs is a Registered Emergency Specialist who graduated in medicine in 1996 and received his Fellowship from the Australian college for Emergency Medicine in 2005.
79. Dr Nguyen was seconded to ARV in 2011 from the Austin Hospital and obtained his Fellowship in anaesthetics in 2013. At the time of the incident, Dr Nguyen was an experienced senior registrar in his final year of training and had been involved in 'hundreds' of retrievals by helicopter/fixed wing and road transportation.
80. Dr Kennedy is a specialist in Emergency Medicine having obtained his Fellowship qualification in 1993. Between 2003 and 2007 Dr Kennedy was Director of Emergency Services at RMH and since 2008, has held the position of Director of ARV.

Communication between Wonthaggi Hospital and ARV:

81. The evidence supports a finding of miscommunications between parties co-ordinating the transfer, however, I am not satisfied this breakdown had a bearing on the tragic outcome, given Mrs Richards' parlous state prior to her retrieval from Wonthaggi Hospital. The course of communications and consequent understanding between the parties became confused and misdirected, in part, as a result of the characterisation of Mrs Richards' condition as gynaecological.
82. The ARV was initially contacted at 10.41am by RN Burns who spoke to a Retrieval Administrative Support Officer (RASO) and was told that Dr Nebbs was currently engaged on another critical case. He subsequently returned the call at 11.03am and spoke to Dr Malzinskas. There is some dispute as to what was communicated during the course of this discussion which cannot be resolved by listening to a recording of the call, as ARV indicated that no recordings exist for the period covering this incident. The case was entered into the ARV computer system with the 'Principal Problem'⁴⁰ noted as gynaecological. The evidence does not enable a finding as to whether the entry was made by the RASO (Chris) or Dr Nebbs as in evidence he was unable to say.⁴¹

³⁹ Dr Nebbs' statement; Inquest Brief 43-3

⁴⁰ Inquest Brief 133

⁴¹ T330 and 335

83. When Dr Malzinskas spoke to Dr Nebbs at 11.03am he was in *'no doubt at all'*⁴² that the injury was a haemorrhage from a major blood vessel and within minutes of observing *'quite a torrent of blood,'* he saw the potential for it being an exsanguinating haemorrhage.⁴³ Although he was unable to recall exact details of his discussion with Dr Nebbs, Dr Malzinskas believes he clearly communicated the urgency of the situation and the clinical picture of what was occurring.⁴⁴
84. However, a review of the Wonthaggi Hospital clinical file shows an entry made by Dr Malzinskas which refers to a suspicion that the haemorrhage originated from the broad ligament. The entry, dated the 13 September 2011, reads in part: *'Large haemorrhage at site of operation - ? broad ligament'*.⁴⁵
85. Dr Nebbs stated that from his conversation with Dr Malzinskas, *'it sounded like it was more of a gynaecological issue than anything else.'* He was informed that during a gynaecological procedure the patient had suffered an injury that involved *'a gush of blood'*.⁴⁶ He agreed that could only be from an injury to a vessel.⁴⁷ Nevertheless, he stated in evidence that he initially believed the injury to be gynaecological, with *'bleeding from somewhere in the broad ligament'*.⁴⁸ This led to his *'first port of call'*⁴⁹ being Dr Catarina Ang at RWH, not a vascular surgeon.
86. It is clear that there was confusion or a misunderstanding at ARV as to the nature of the principal problem confronting Mrs Richards. I am satisfied Dr Malzinskas raised the possibility of injury to the broad ligament during the course of his discussion with Dr Nebbs, who recorded it in the Call Log record. It was unnecessary for Dr Malzinskas to do so, as he was in no doubt at all that the haemorrhage was from a major vessel. In raising the issue of the broad ligament, however, I am satisfied it gave rise to confusion at ARV and resulted in the principal problem being categorised as gynaecological, despite this being contrary to the opinion of the operating staff at Wonthaggi Hospital. Dr Nebbs stated in evidence, *"So initially it sounded like a gynaecological issue – bleeding from somewhere in the broad ligament. I'm not surgically trained, I'm an emergency physician. So this is out of my area of expertise."*⁵⁰

⁴² T171

⁴³ T138

⁴⁴ T171

⁴⁵ Inquest Brief 111

⁴⁶ T 284

⁴⁷ T1090

⁴⁸ T241

⁴⁹ Ibid

⁵⁰ Ibid

87. A further reference to the broad ligament appears in a hand-written entry in the ARV Patient Records, with the entry being notes taken during the course of the event by Dr Nebbs.⁵¹ Dr Nebbs stated he re-wrote⁵² them several days after becoming aware of Mrs Richards' death, 'for the sake of legibility' and to place an entry under a more appropriate heading. In doing so a number of changes were made to the two page document.⁵³
88. Dr Nebbs maintains that in addition to being informed of the bleeding being possibly from the broad ligament that he was also told the bleeding was under control.⁵⁴ The first contemporaneously generated document said to support this, is the ARV Clinical Note⁵⁵ which according to Dr Nebbs appears to be generated by him.⁵⁶ It reads in part: '*Laparotomy hard to see bleeder. Tied off vessels. Gained control.*'⁵⁷ To the extent that the Clinical Note refers to vessels having been tied off, this is consistent with the statement of RN Thow referring to a number of blood vessels being tied off at Wonthaggi Hospital. The reference however to gaining control remains in dispute as her statement goes on '*...tied off a number of blood vessels but the bleeding continued.*'⁵⁸
89. Given the circumstances set above, Dr Nebbs should not be criticised for initially believing the 'Principal Problem' was gynaecological and that the bleeding was under control, leading to him ringing Dr Ang and believing an ICU bed was the most likely destination. Dr Nebbs stated that in consultation with Dr Kennedy, communication was made to secure an ICU bed as there was no immediate need to go directly, or even ultimately, to the operating theatre.⁵⁹
90. The call to Dr Ang was at 11:26am with her contemporaneous handwritten notes being consistent with a view of the preferred destination being ICU at RMH.⁶⁰ I am satisfied it was reasonable that Dr Nebbs make contact with the consultant gynaecologist and that he did not initially urge a transfer to an operating theatre.

⁵¹ Inquest Brief 129-130

⁵² Inquest Brief 131-132

⁵³Page two of the original document contains the notation, '? Broad lig. Art/vein'. Dr Nebbs stated that this meant '*Query broad ligament artery vein*' as the possible haemorrhage source.⁵³ In his re-written document the reference to broad ligament appears on the first page under the heading 'Clinical History'. Dr Nebbs explained that this was done as it was inappropriate to have it under the previous heading of 'Drugs/Infusions/Fluids'.⁵³This is a perfectly reasonable explanation. The reference to artery/vein, however, does not appear on either page of the re-written document, with no explanation for the omission being given.

⁵⁴ T337-338

⁵⁵ Inquest Brief 133

⁵⁶ T330

⁵⁷ Inquest Brief 133

⁵⁸ Inquest Brief 30

⁵⁹ T348

⁶⁰ Inquest Brief 163

91. Subsequent to this call, a further reference to control of the bleeding arises from an entry in the Call Log at 11:39am made following a conversation between Dr Nebbs and Dr Malzinskas. The entry states in part: *'Pt update. Surgeon thinks bleeding is under control, dropped blood pressure.'*⁶¹ Dr Malzinskas said of this call that *'I don't have any recollection of that call.'*⁶² Accordingly, the best evidence as to what was conveyed is the entry made by Dr Nebbs.

Dr Nguyen's involvement at Wonthaggi Hospital:

92. Dr Nguyen gave evidence that he was responsible for the safe and timely retrieval of Mrs Richards to RMH. Upon his bedside attendance at 12:25pm, he was surprised to find Mrs Richards more critically ill than he expected. He did not expect to find ongoing blood loss with blood oozing from her abdominal wounds, nose and all IV lines. He observed profuse amounts of blood dripping onto the floor⁶³ and a nurse at the bedside applying a pressure bandage to the wound which was saturated with blood.

93. In addition to ongoing bleeding his assessment was of haemodynamic instability, coagulopathy and hypovolaemia. Mrs Richards' blood pressure was 60/30 despite fluid resuscitation (14 units of packed red blood cells and 18 litres of IV fluid) having been administered. Dr Nguyen told the court, *'I had a very unwell patient who had a life threatening haemorrhage which had not been identified and was not controlled.'*⁶⁴ Dr Nguyen was of the view that Mrs Richards was in need of life saving surgery and this was communicated during his update to Dr Nebbs, five minutes after his arrival.⁶⁵

94. Initially Dr Nguyen proposed to "scoop and run"⁶⁶ in order to transfer Mrs Richards as soon as possible. However, as her circumstances were significantly different from what was recorded during the 11:39am update, Dr Nguyen requested a second laparotomy be performed with the aim of controlling or stemming the ongoing haemorrhage and describing the decision to do so as a 'team decision',⁶⁷ involving himself, Dr Crellin, Dr Malzinskas and 'all the staff there.'

95. Dr Nguyen stated: *'The salvage operation was aimed at improving surgical haemostasis either by clamping large vessel bleeding and/or firmly packing the abdomen and pelvis to tamponade bleeding. Following the salvage operation whereby the abdomen was firmly*

⁶¹ Inquest Brief 139 ARV Call Log

⁶² T174

⁶³ Inquest Brief 123

⁶⁴ T897

⁶⁵ T1125

⁶⁶ Inquest Brief 139 ARV Call Log

⁶⁷ T894

packed, bleeding was not “controlled” but imminent death secondary to acute exsanguination was mitigated.’⁶⁸

96. Despite the procedure delaying the transfer, I am satisfied it was appropriate to undertake a second laparotomy, as the evidence does not support a finding that Mrs Richards’ bleeding was controlled and Dr Nguyen believed she was at risk of not surviving the transfer.⁶⁹ The evidence of Dr Bird supports the procedure being warranted,⁷⁰ with him stating: ‘...if they felt that the clinical scenario was such that the patient wouldn’t survive the helicopter ride to Melbourne then the second laparotomy is the thing to do.’⁷¹
97. Prior to requesting a second laparotomy vasoconstrictors and inotropes were administered to Mrs Richards between 12:27pm and 12:40pm, with Dr Nguyen stating this was necessary as he believed vital organs were not being adequately perfused.⁷² Mrs Richards’ blood pressure at 12:25pm was 60/30 and at 12:30pm her mean arterial blood pressure was 30, which Professor Judson described as being ‘desperately low’⁷³ and stating that she was ‘very, very haemodynamically unstable.’⁷⁴
98. The appropriateness of this management was questioned in submissions made on behalf of Bass Coast Regional Health. It was submitted that the net effect of the treatment was to increase blood pressure and as the injured vessel remained undetected, the result was an inevitable increase in haemorrhage. However, Mrs Richards had a weak carotid pulse and as her pupils were slow and sluggish to react, Dr Nguyen was uncertain as to whether the brain was receiving blood.⁷⁵ While the evidence indicates there was increased bleeding during this resuscitation process, I am satisfied it was reasonable to administer the vasoconstrictors and the inotrope in an attempt to keep the blood pressure at a level that was enough to perfuse her vital organs.

Communication between the ARV and the RWH:

99. Dr Nebbs was aware that Mrs Richards had suffered an injury during a gynaecological procedure and from the outset it was intended that she be transferred to RMH not RWH.⁷⁶ The inquest heard that the RMH and the RWH are located on the same site and as there is

⁶⁸ Exhibit 21; Statement of Dr Nguyen

⁶⁹ T894, 897

⁷⁰ T515

⁷¹ T541

⁷² T972

⁷³ T804

⁷⁴ T809

⁷⁵ T961

⁷⁶ T1142

no ICU at RWH, patients requiring ICU go to the RMH ICU. A RWH patient to be treated in the RMH ICU requires to be admitted under the 'Team bedcard' of a RMH inpatient unit, with the usual practice for RWH patients being under the emergency general surgical team bedcard. The surgical team usually has no clinical involvement with the RWH patients in ICU unless the RWH doctors or ICU doctors specifically request it.⁷⁷

Dr Ang:

100. At 11.26am Dr Nebbs contacted the RWH and was put through to the on-call gynaecologist, Dr Ang. He understood that Dr Ang did not have RMH admitting rights. Dr Nebbs had four telephone contacts with Dr Ang, with the discussion they had during the 12.34pm call being the most significant. Dr Ang's evidence was that Dr Nebbs explained Mrs Richards' situation, that the bleeding had been 'contained or stopped'⁷⁸ and that the necessity for a vascular surgeon was discussed, with this being acknowledged by Dr Nebbs⁷⁹ and is clear from the ARV Call Log.⁸⁰
101. The information provided to her by Dr Nebbs about the number of units of packed cells and crystalloid fluids already administered suggested a significant vascular injury and more than bleeding in the broad ligament.⁸¹ She stated that one wouldn't expect bleeding to be substantial if it stemmed from the broad ligament. *'When somebody says that there is some broad ligament bleeding, the broad ligament itself, because it does have some small vessels, will bleed, but it won't be a really large haemorrhage that seems to require so much resuscitative measures.'*⁸²
102. Dr Ang told the inquest she made a contemporaneous note⁸³ that evening of her involvement in the case. She stated that she agreed an ICU bed would be required at some point and that she would be happy to be involved and contacted when or if the patient returned to theatre. Her note also includes a notation that she recommended to Dr Nebbs the presence of a vascular surgeon in Mrs Richards' management. The ARV log entry of the 12.34 discussion reflects this, recording in part '*JN (Dr Nebbs) to talk to ICU Reg and Surg Reg at RHM.*'⁸⁴ Dr Ang's understanding, however, was that there was no definitive plan to go to theatre.⁸⁵

⁷⁷ Inquest Brief 63-25

⁷⁸ Inquest Brief 44

⁷⁹ T1143

⁸⁰ Inquest Brief 139

⁸¹ T373

⁸² T380

⁸³ Exhibit 14

⁸⁴ Inquest Brief 139 ARV Call Log

⁸⁵ T466

103. As ARV was responsible for coordinating the transfer, which included communicating relevant information, it was reasonable for Dr Ang to assume that Dr Nebbs would fully inform the RMH surgical team of the relevant circumstances necessary to ensure the transfer was managed appropriately.

104. I accept the submission made on Dr Ang's behalf, that by making it clear at the earliest stage that she could not admit Mrs Richards to the RMH but was happy to be involved in her care once she was there and by advising that a vascular surgeon was likely to be required, she conducted herself appropriately and should not be criticised for not contacting the RMH surgical team.

Communication with RMH Regarding Destination: Theatre or ICU

105. The decision regarding what was the appropriate destination for Ms Richards following her arrival at RMH was a fact in issue at the inquest. The 12:34pm entry in the ARV record relating to communication between Dr Nebbs and Dr Nguyen in part states: *'Patient update. Will need vascular surgeon. Patient will need to go to theatre.'* A subsequent entry at 13:05 however, records a communication between Dr Nebbs, Dr Pirani and Dr Ang stating: *'Patient update. Patient straight to ICU.'*

106. In Dr Bird's expert opinion, Mrs Richards "...would have been better transferred directly to the operating suite at the RMH with a consultant-led surgical team, including a vascular surgeon, standing by for an immediate attempt at stopping the bleeding."⁸⁶

107. Irrespective of the intended destination for Mrs Richards within RMH, Professor Judson was of the opinion that: *'...I think Mrs Richards arrived in the operating theatre within half an hour of arrival which even if we'd planned to get there directly I don't think in reality that people would normally have got to the theatre more quickly than half an hour anyway, so there was not – from the time she arrived resuscitation continued apart from maybe the slight glitch with the adrenaline infusion and she was transferred to the – everything flowed quite smoothly, the surgical team arrived within minutes of this happening... I don't perceive that a serious mishap occurred in her management.'*⁸⁷

108. Support for Professor Judson's opinion that transferring Mrs Richards to the ICU was clinically reasonable is found in the evidence of Dr Ang when she stated: *'...if the patient is unstable then taking them to theatre immediately is not going to be servicing their best interests. They might well be best to go to intensive care first to be stabilised, the handover,*

⁸⁶ Inquest Brief 61

⁸⁷ T836-837

*make sure that infusions, the inotropes are all sufficient before going to theatre.*⁸⁸ Further support for preliminary assessment stabilisation in the ICU comes from Mr Crellin⁸⁹ and Dr Pirani.⁹⁰

109. It is conceded by RMH that a decision was made by RMH as between the Emergency Department and ICU as a destination, but no decision was made as between the ICU and theatre as a destination.⁹¹ Ultimately, it is the role of the receiving hospital and not ARV to make the final decision as to the appropriate destination for a patient.

110. The evidence satisfies me that the ICU was not an unreasonable destination at the RMH and that Mrs Richards' coagulopathy was irreversible by the time she arrived at RMH. Accordingly, any change in the destination between ICU and the theatre at the RMH would not have changed the tragic outcome for Mrs Richards.

Conflicting Evidence and Standard of Proof:

111. There was extensive and conflicting evidence about the communications between Dr Nebbs and staff of the RMH regarding Mrs Richards' destination within the hospital. At 11.30am Dr Nebbs first contacted the RMH ICU Registrar, Dr Pirani with further contacts made at 12:38pm and 13:05pm. Dr Nebbs contacted the RMH Surgical Registrar, Dr Chittleborough at 11:35. Examples of conflicting evidence resulting from these contacts include the following:

- Dr Nebbs expressly asked Dr Pirani to contact a vascular surgeon, which is denied by Dr Pirani.
- Contrary to Dr Nebbs' evidence, Dr Pirani stated that he was not told that Mrs Richards had suffered torrential blood loss or
- that she was deteriorating further or
- that she would need further surgery with a plan to go straight to theatre or
- that she would require vascular rather than gynaecological surgery

⁸⁸ T377

⁸⁹ T27-28

⁹⁰ T426

⁹¹ TRMH submission para. 82.

- Dr Nebbs disputed ever suggesting Mrs Richards was haemodynamically stable while Dr Pirani's evidence is that he was told she was stable and then saying later he was never told she was haemodynamically stable without inotropes.
- Dr Nebbs stated he would have told Dr Chittleborough that Mrs Richards had been bleeding, whilst Dr Chittleborough stated he was not told.

112. In determining facts in issue, the applicable standard of proof is that of reasonable satisfaction, as held by Dixon J in *Briginshaw v Briginshaw*⁹²:

"The seriousness of an allegation made, the inherent likelihood of an occurrence of a given description, or the gravity of the consequences flowing from a particular finding are considerations which must affect the answer to the question whether the issue has been proved to the reasonable satisfaction of the tribunal. In such matters, reasonable satisfaction should not be produced by inexact proofs, indefinite testimony or indirect inferences."

113. Regrettably, due to a systems failure the voice recordings for a period of nearly four hours between 10.10 am and 2.00 pm on 13 July 2011, were not available.⁹³ In the absence of a recording of the ARV calls, I am reliant on the very brief descriptions found in the Call Log between Dr Nebbs and the external medical officers and their recall of those conversations some four years later. As '*reasonable satisfaction should not be produced by inexact proofs, indefinite testimony or indirect inferences*', these factual conflicts must remain unresolved. Accordingly, where responsibility lies for the change in destination from directly to theatre to ICU admission, cannot be determined.

Findings:

114. Mr Crellin was unable to explain what caused the haemorrhage to commence. The best evidence is from Dr Bird who believes the damage to the artery happened during one of the trochar insertions.⁹⁴ Despite Mr Crellin's evidence that he '*did not recollect any unusual or undue difficulty in insertion*',⁹⁵ I am satisfied the damage to the artery could only have occurred following the use of excessive pressure during any one of the insertions.

⁹² (1938) 60 CLR 336 at 362-363

⁹³ Exhibit 10

⁹⁴ T500

⁹⁵ Exhibit 2

115. The evidence satisfies me that during the procedure undertaken by Mr Crellin there was a departure from the reasonable standards expected of a general surgeon and that he caused Mrs Richards' death.
116. Mr Crellin's attempted management of the vascular injuries was consistent with Victorian Surgical Consultative Council guidelines.
117. Dr Malzinkas decision to call for un-crossed matched blood products was appropriate in the circumstances.
118. Mrs Richards' BMI did not contravene the hospital surgery policy, hence the tubal ligation procedure could be undertaken at Wonthaggi Hospital.
119. Mrs Richards' condition became irreversible whilst at Wonthaggi Hospital.
120. Mrs Richards' transfer to the ICU was clinically reasonable and made no difference to the tragic outcome.
121. The evidence does not support a finding that:
- a. The administration of vasoconstrictors and inotropes at Wonthaggi Hospital resulted in the need for a second laparotomy.
 - b. The second laparotomy inappropriately delayed transfer.
 - c. The removal of the syringe drivers at RMH caused the cardiac arrest.
122. Gippsland Pathology's error in providing FFP in frozen form to Wonthaggi Hospital was not causatively related to the death.

Comments:

Pursuant to section 67(3) of the Coroners Act 2008, I make the following comments connected with the death:

1. An elective laparoscopic procedure to provide permanent contraception for a young woman should be and usually is a straightforward, simple and safe procedure. In this case, the procedure undergone by Mrs Richards resulted in a catastrophic outcome.
2. There is an increased risk of complications from laparoscopy in those who have had previous abdominal surgery, and in the very thin or obese.⁹⁶ The incident occurred in a regional hospital with limited access to the expertise, blood clotting factors or equipment to deal with a catastrophic haemorrhage.
3. Events surrounding the transfer of Mrs Richards from the regional hospital to the tertiary hospital, were characterised by a degree of miscommunication and/or misunderstanding,

⁹⁶ Victorian Surgical Consultative Council. Guidelines for Laparoscopic Vascular Injuries-the Verres Debate. 2010. Accessed at <http://www.health.vic.gov.au/vscc/>

emphasizing the critical importance of informed and accurate communication at all times. It is trite to state that this becomes paramount in life threatening circumstances. The court appointed expert, Dr Bird, highlighted a key issue of transfer and a communication procedure to ensure the correct clinical staff are involved in the ARV conference call and involved from the outset.

4. ARV have implemented the following changes to procedural guidelines with the aim of strengthening transfer and communication procedures:
 - a. The AVR coordinator is to discuss all ICU/HDU retrieval cases with a receiving hospital ICU consultant. It is not appropriate for cases to be unnecessarily 'filtered' or delayed by preliminary conversations with receiving hospital registrars.
 - b. Where a patient is in extremis or is significantly unstable and has need for time critical procedural intervention, for example emergency surgery, then access to critical procedure is to be the key driver for destination selection.
 - c. In circumstances of 'patient-in-extremis', careful consideration of the destination unit within the receiving hospital must occur and must be discussed with the senior staff at the hospital, with a decision made based on the needs of the patient and the logistic capability of the receiving hospital.
5. Although the destination unit for a patient remains the decision of the receiving hospital, the ARV coordinator is to advocate for the most appropriate destination based on their knowledge of the patient's immediate clinical needs and is to communicate with the receiving consultant grade staff. This is considered most relevant to patients with uncontrollable haemorrhage who require urgent intervention and for whom direct transfer to an operating theatre may be advocated.
6. Changes have also been implemented at Wonthaggi Hospital since the death of Mrs Richards. The hospital has reviewed its Code Blue Alert Policy and has instituted a system whereby a Code Blue alert must be called even when medical officers are in attendance. A calendar of visiting specialist is available within Wonthaggi Hospital to determine what additional specialist medical support may be available during an emergency. In addition, a dedicated Transfusion Trainer is working within the hospital and a Blood Transfusion Committee has been established. A Massive Blood Transfusion Policy and Procedure has been instituted together with appropriate training having been implemented.
7. Reviews of the BMI stratification for elective patients and reviews of equipment have occurred including documentation of settings for various instruments e.g, diathermy

settings; calibration and routine maintenance of the operating suite scales; ensuring correct time is marked on the theatre clock to maintain accuracy of documentation; disposable trochars are now in use.⁹⁷

8. Gippsland Pathology Service has had input into the development of the Massive Haemorrhage Policy and Protocol⁹⁸ and a Massive Transfusion Protocol which are now in place at Wonthaggi Hospital.⁹⁹ In addition, a Blood Transfusion Committee and a Pathology Committee have also been established and Gippsland Pathology Service have installed a freezer to hold FFP and cryoprecipitate and thawing bath for blood products at the Hospital.¹⁰⁰

Recommendations:

Pursuant to section 72(2) of the Coroners Act 2008, I make the following recommendations connected with the death:

1. The evidence of Dr Crellin was that he assumed his patient would require vascular surgery¹⁰¹ following transfer to RMH, yet he did not communicate with the receiving hospital to convey his views. I note the evidence of Professor Judson when he said that the person whom the surgeon, given the task of salvaging an iatrogenically injured patient, would most want to hear from is the surgeon who undertook the implicated procedure.
 - It is recommended that the Royal Australasian College of Surgeons institute guidelines addressing the need for communication between the operating surgeon from the sending hospital and a surgeon at the receiving hospital in circumstances such as this, notwithstanding the presence of the ARV.
2. Dr Crellin told the inquest that he contemplated retiring at age 60 and having decided not to, he kept his skills up to date by acceding to “the ongoing education and standards programs for the College of Surgeons.”¹⁰² He stated that the training was theoretical and could ‘see no reason to think’ that he would have benefitted from having some practical training.
 - It is recommended that the Royal Australasian College of Surgeons consider mandatory and regular continuing professional development with theoretical and practical components, for surgeons performing laparoscopic procedures.

⁹⁷ T1040

⁹⁸ T1037

⁹⁹ T1010

¹⁰⁰ T1007

¹⁰¹ T74

¹⁰² T48

I direct that a copy of this finding be provided to the following:

Mr Jason Richards

Ms Barbara Dowling

Mr Ben Hall, HWL Ebsworth

Ms Kate Hughes, Avant Law

Mr Andrew Smith, John W Ball & Sons

Ms Dimitra Dubrow, Maurice Blackburn Lawyers

Ms Jan Moffatt, Donaldson Whiting & Grindal

Ms Lisa Ridd, Minter Ellison Lawyers

Dr Malcolm Mohr, Royal Melbourne Hospital

Mr Abhi Mukherjee, Hayden Starke Chambers

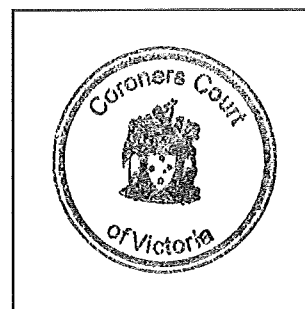
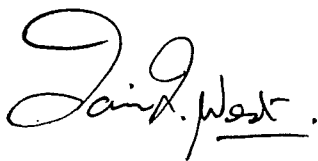
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Secretary, Royal Australasian College of Surgeons

Signature:



IAIN WEST

DEPUTY STATE CORONER

Date: 14 April 2016