

SOUTH



AUSTRALIA

## FINDING OF INQUEST

*An Inquest taken on behalf of our Sovereign Lady the Queen at Adelaide in the State of South Australia, on the 4<sup>th</sup> and 5<sup>th</sup> days of August and the 5<sup>th</sup> day of November 2003, before Wayne Cromwell Chivell, a Coroner for the said State, concerning the death of Julie Anne Martin.*

*I, the said Coroner, find that, Julie Anne Martin aged 38 years, late of Julia Farr Centre, 103 Fisher Street, Fullarton, South Australia died at the Royal Adelaide Hospital, Adelaide, South Australia on the 25<sup>th</sup> day of March 2001 as a result of peritonitis.*

### **1. Introduction**

- 1.1. Mrs Julie Anne Martin was a long-term resident of Julia Farr Services at Fullarton.
- 1.2. Mrs Martin had been totally incapacitated, and was in a persistent vegetative state, as a result of a severe organic brain injury she suffered during a surgical operation she had undergone on 2 July 1998. The operation was an emergency procedure for a suspected ruptured ectopic pregnancy, and while being induced with the anaesthetic Suxamethonium, she suffered an anaphylactic reaction which led to severe anoxic encephalopathy from which she did not recover. She was transferred to Julia Farr Services on 9 September 1999.
- 1.3. Because Mrs Martin's brain injury had led to severe paralysis, it was necessary for the doctors to create a tracheostomy in order to maintain artificial ventilation. Because Mrs Martin was unable to protect her airway, it was not possible to provide her with nutrition orally, so a Percutaneous Endoscopic Gastrostomy ('PEG') was performed whereby a tube was inserted through a hole in the abdominal wall and into the stomach through which liquid nutrition could be provided.

- 1.4. On 21 March 2001 the PEG tube fell out causing spillage of liquid food. This is a dangerous situation for the patient, and must be attended to without delay.
- 1.5. A registered nurse attempted to reinsert a smaller PEG tube but was unsuccessful. She called a medical practitioner who then inserted 'with difficulty' the same size PEG tube as had been previously inserted.
- 1.6. Mrs Martin developed respiratory difficulty later that evening, and the duty medical officer was called into Julia Farr Services. Following her examination, Mrs Martin was transferred to the Royal Adelaide Hospital for investigation of '?aspiration pneumonia, ?mucus plugging/collapse?.
- 1.7. Mrs Martin was examined by a medical practitioner in the Emergency Department and X-rays were taken and no evidence of pneumonia was found. Without diagnosis of her condition, Mrs Martin was discharged back to Julia Farr Services at around 3:30am on 22 March 2001.
- 1.8. Mrs Martin's condition continued to deteriorate during the morning of 22 March 2001, to the extent that she was transferred back to the Royal Adelaide Hospital again at 2:30pm. At the Royal Adelaide Hospital she was seen in the Emergency Department, and an abdominal X-ray found free gas in the abdominal cavity, suggesting that the PEG tube had been misplaced, or a hollow viscus had been perforated and stomach contents had discharged into the abdominal cavity. Mrs Martin's situation was reviewed by a surgeon, but having regard to her desperate situation, it was thought that surgery was not indicated and so palliative care was provided and Mrs Martin died on 25 March 2001 at about 7am.

## **2. Cause of death**

- 2.1. A post-mortem examination of the body of the deceased was performed by Professor R W Byard on 27 March 2001 and he diagnosed the cause of death as peritonitis. He commented:

'Death was due to peritonitis with septic shock. The presence of free gas within the peritoneal cavity on abdominal X-ray during hospital admission indicates that a hollow viscus had been perforated. While no definite perforation site could be detected around the gastrostomy stoma the aggregation of fibrinopurulent adhesions around this area suggests that the perforation had occurred at this site.

In addition, there was no evidence of ulceration or perforation of any part of the gastrointestinal tract, which was opened in its entirety. Specifically, the appendix was completely normal and there was no evidence of diverticular disease. Given the clinical history in the hospital notes it is likely that perforation occurred at the time of reinsertion of the gastrostomy tube, as this was noted to be a difficult procedure. The gastrostomy stoma was patent at the time of autopsy and thus the reasons for the difficulty in replacing the PEG tube are unclear. Gastrostomy feeding was required following the severe anoxic encephalopathy sustained by the deceased. No other organic diseases were present which could have caused or contributed to the death. There was no evidence of trauma.'

(Exhibit C2a, p1-2)

- 2.2. A neuropathological assessment was performed by Dr Grace Scott, Neuropathologist, on 6 April 2001. Dr Scott noted 'marked macroscopic cerebral atrophy consistent with long-term effect of anoxic encephalopathy', and this was confirmed on microscopic examination (see Exhibit C3a and C3b).

### **3. Background**

- 3.1. At around 12:30pm on 21 March 2001, two enrolled nurses at Julia Farr Services reported to Registered Nurse Elizabeth Moody that Mrs Martin's PEG tube had fallen out. Ms Moody attended and assessed the situation, and ascertained that it had not been a long time since the tube had fallen out, since the last feed had been commenced at 12 noon. She estimated that the tube may have been out for between 15 and 30 minutes (T19).
- 3.2. RN Moody said that she telephoned Dr Susan Goodall, the Resident Medical Officer who told her to try and reinsert the tube and that she would be there shortly.
- 3.3. RN Moody attempted to reinsert a tube but she was unable to do so because the stoma or hole in the stomach had begun to close over (T22).
- 3.4. Since the inquest hearing concluded, my office was contacted by RN Sue Lim, who later gave a statement to Ms Kate Hodder, counsel assisting me, concerning these events. Ms Lim told Ms Hodder that on an occasion in March 2001 Mrs Martin required PEG tube reinsertion after the tube fell out during feeding in the dining room. Mrs Martin was transferred back to her room, and RN Lim said that she attempted to insert a size 14 tube but was unable to push it through the stoma, even though she pushed 'reasonably hard'.

- 3.5. This evidence is contrary to that of RN Moody – RN Lim thought that she invited RN Moody to do it and she declined.
- 3.6. Ms Cliff, counsel for Julia Farr Services and Royal Adelaide Hospital, submitted that I should prefer the evidence of RN Moody on this topic for a number of reasons, including the fact that it was RN Moody who made the entry in the casenotes, Julia Farr Services does not keep size 14 gastrostomy tubes in stock, and other matters.
- 3.7. What is interesting about this issue is whether both RN's are partly correct, and each attempted to reinsert the tube without the knowledge of the other.
- 3.8. A further issue for speculation is whether any, and if so which, of these attempts to reinsert the PEG tube caused the perforation which led to Mrs Martin's death. That is not a question which is capable of being answered. I think the better question is whether, once the perforation occurred, appropriate measures were taken to treat Mrs Martin.
- 3.9. Dr Goodall attended shortly afterwards and inserted another PEG tube. She described the procedure as follows:

'The tube and balloon are inserted after lubrication jelly is placed on the end of the tube. The tube is then gently pushed through the hole in the skin and then down into the hole in the stomach. They are directly opposable with only a small space between and it is normally just a simple gentle procedure to push it in. If the tube has been out even for a period of 10 to 15 minutes, then the hole into the stomach as the tube goes through has to gently open so that the tube can pass through. Once the tube is in the stomach, the water is injected into the balloon which then inflates. When the balloon is inflated you just gently pull the tube back until the balloon opposes the stomach wall. The tube has a disc or triangle of silicon plastic which you then gently pull down so the plastic disc/triangle opposes against the skin. This is to prevent the tube from sliding further into the stomach. If that happens then the action of the stomach can carry the tube further into the stomach and into the duodenum. This can cause a blockage of the pyloric sphincter and so cause an obstruction to the stomach. You have to make sure that the disc is not on the skin. So the balloon stops the tube falling out of the stomach and the disc stops the tube from going further into the stomach.'

(Exhibit C11, p3)

Dr Goodall explained in oral evidence that it is necessary to place the disc up against the skin but not pressing down on it (T76).

- 3.10. Dr Goodall did not record this procedure in the clinical record until the morning of 22 March 2001 after Mrs Martin's condition had deteriorated considerably. Her note reads as follows:

'Late entry for 21 March 2001 13:30

- Gastrostomy tube fell out spontaneously. Balloon appears perished
- Nursing staff unable to insert new tube
- New tube inserted with difficulty. Tube felt to go through inner stoma.
- Unable to aspirate
- 60ml water given with ease
- Air auscultated
- Give next feed – due 18:00

If any distress contact o/c (on-call) MO'

(Exhibit C8b)

- 3.11. Dr Goodall explained what she meant by 'with difficulty':

'It wasn't an easy insertion. The easy insertions go straight through both stomas, the external and the internal, immediately and they tend to be when you've removed an old tube and immediately replaced the new tube. It was a slightly difficult one, it took three attempts to get the tube into the stomach but it wasn't an unusually difficult, that degree of difficulty is quite common..' (T78)

She explained further that this was not a reinsertion which involved any trauma, or at least any apparent trauma or bleeding such as might have occurred if dilators had been needed to reinsert the tube. She said she had never done that at Julia Farr Services (T79).

- 3.12. At about 4pm that afternoon, Registered Nurse Ann Collins saw that Mrs Martin had vomited a small amount of food. This was not noted in the clinical record (T39). At around 7:30pm RN Collins saw Mrs Martin again. Her tracheostomy was cleared with suction and thick discoloured secretions were noted. Mrs Martin was repositioned on the bed and she vomited again.
- 3.13. At 7:45pm RN Collins cleared the tracheostomy again but using suction, because Mrs Martin was noted to have vomited again. On this occasion she noted that Mrs Martin was perspiring profusely, was cold to the touch and her pulse had risen to 120 beats per minute.

- 3.14. The on-call medial officer, Dr Sandhya Jain, was contacted at about 8:05pm. She suggested that Mrs Martin be given Ventolin for her respiratory distress which RN Collins did, with 'minimal effect' according to the casenote.
- 3.15. At 8:40pm Mrs Martin vomited again and, since she had not improved with Ventolin, Dr Jain was again contacted and attended Julia Farr Services at 9:05pm. She was informed that the PEG tube had been replaced that afternoon. She was unaware that Dr Goodall had encountered any difficulty, since Dr Goodall's note was not made until the next day (T68).
- 3.16. On examination, Mrs Martin was very distressed, she was having difficulty breathing, her pulse was elevated at between 115 and 125 beats per minute. Her oxygen saturation had decreased from 96% to 97% noted by RN Moody at 2pm, to 92% to 93%. Dr Jain noted the information that she had suffered 'small vomits', that there were thick whitish secretions in the tracheostomy, and that her peripheries were cold. The abdomen was 'soft to firm' and there was 'slight distension', although Dr Jain explained that this may have been due to the elevated position in which Mrs Martin had been placed (T60). The gastrostomy tube was noted to be correctly positioned.
- 3.17. Dr Jain's assessment was that Mrs Martin may have been suffering from mucus plugging of the upper airways, or she had aspirated vomit. She prescribed Ventolin, and antibiotics with continuous humidification, and she tried to contact Mrs Martin's husband to discuss transfer to the Royal Adelaide Hospital (T60-61).
- 3.18. Dr Jain was unable to contact Mr Martin and so made the decision to transfer Mrs Martin at 9:45pm when her condition had not improved. Dr Jain wrote a letter to the Royal Adelaide Hospital on a document described as 'UR9.6' in which she described the 'History & Examination (current problem)' as follows:
- ? aspiration pneumonia. ? mucus plugging/collapse. For chest X-ray/assessment.
  - distressed/cold & clammy, pulse irregular; O<sub>2</sub> sat 92%
  - has tracheostomy/having humidification & Ventolin.
  - commenced on Ciprofloxacin tonight.
  - gastrostomy tube was replaced this afternoon (was out/balloon perished)
- (Exhibit C12a)

- 3.19. Dr Jain outlined in summary form Mrs Martin's relevant history, her allergies to medication, and then described the provisional/differential diagnosis as:

'? Aspiration pneumonia - for chest X-ray & assessment'  
(Exhibit C12a)

- 3.20. At 10:50pm, RN Collins noted that Mrs Martin had again vomited 'small amount coffee ground vomit - dark coloured' in the clinical record. This note was entered in the clinical record only 5 minutes after Mrs Martin left for the Royal Adelaide Hospital at 10:45pm. Unfortunately, RN Collins did not include this event in the nursing information with accompanied Mrs Martin, because her letter to the Royal Adelaide Hospital had already been photocopied and sent with the patient (T47). RN Collins had already made one alteration to the letter, by including a reference to the two earlier vomits (T49). She did not inform Dr Jain of this event, since by then Dr Jain had already left the hospital, and she did not advise the ambulance personnel or the nurse who accompanies Mrs Martin to the Royal Adelaide Hospital (T52).

#### **4. Treatment at the Royal Adelaide Hospital**

- 4.1. Mrs Martin was transported by ambulance with an enrolled nurse as escort to the Royal Adelaide Hospital, arriving at 10:45pm. She was seen by Dr Ho Quan Ly, Casual Medical Officer at 12:30am. His interpretation of the clinical record, given in an interview with Senior Constable Elliott from the Coronial Investigation Section on 10 April 2002 is as follows:

'During my examination I noted laboured breathing, sweating, chest air entry was present on the left and right and she did have some expiratory crackle breath sounds. Her tracheostomy tube was insitu and functioning. Her abdomen was soft non tender. Observations on the nursing chart were oxygen saturations of 92%, blood pressure was 116 over 85, respiration was 40, pulse 145, she was afebrile with a temperature of 36.6 and all these vital signs remained stable whilst she was being observed in the Royal Adelaide Hospital. Mrs Martin did not vomit at any stage whilst she was at the hospital.

When examining the abdomen I palpated the area looking for any sign of pain from the patient. This was difficult due to her severe brain injury. I was observing as to whether there was any increase in her respiratory rate or secretions to indicate more pain but there was no response. I do not recall if I examined for bowel sounds. I did not document whether I examined the gastrostomy tube so I do not recall if I did. It would however be part of a normal examination despite the reason for the patient's referral. It would not necessarily be documented particularly if there was no problem identified. I would have paid more attention to the gastrostomy tube if there was any indication that it was not

functioning. There was no indication that the staff at the Julia Farr Centre had difficulties inserting the new tube.

As a result of my examination a chest X-ray, CBE, electrolytes and LFT's were conducted. These tests were conducted for assessment of aspiration pneumonia, to assess if there were signs of infection, to test renal function and LFT's to find any liver impairment. The chest X-ray showed no evidence of pneumonia, no effusions, no heart failure, and no other abnormalities seen. The chest X-ray does not go low enough to confirm the position of the gastrostomy tube but no gas was seen under the diaphragm. This supported my clinical examination as there was no rigidity in the abdomen to suggest there was gas. I interpreted the X-ray myself though it was formally reported on later that morning by a radiologist. The results of the blood tests were haemoglobin 199, platelets 314, white cells 5.6, sodium 141, potassium 5.6 which was haemolysed, bicarb 15, chloride 109, glucose 10.6, urea 8.6, creatinine 0.094 and the LFT's were normal. The blood tests did not indicate any infection with the white cells being normal. Creatine indicated good renal function and the bicarb was low which can suggest acidosis but this could have been something the patient had for sometime.

I discussed Mrs Martin's history, examination and investigations with Dr Mark Wadsworth who is one of the registrars in the Emergency Department. I told him that Mrs Martin had a history of anoxic brain injury and had a tracheostomy. She had come in with respiratory distress. A chest X-ray showed no pneumonia and the white cells were normal. I was unable to determine the cause of Mrs Martin's condition and sought advice regarding a plan of management. Dr Wadsworth did not advise me of any other investigations. I put to him that my plan was to speak with the husband with the view to returning Mrs Martin to Julia Farr. She would continue on with her regular medications, given oxygen as required, and 4 hourly observations with particular attention to the tracheostomy. The G.P. would follow up in the morning and if there was no improvement in her condition she would be returned to hospital. Dr Wadsworth agreed with that. He did not see the patient.'

(Exhibit C6b, p2-3)

## **5. Return to Julia Farr Services**

- 5.1. Mrs Martin was discharged back to Julia Farr Services at about 3:30am. The staff were surprised that she was returned at this hour, given that there was no medical officer on duty at the time. The only information they received from the Royal Adelaide Hospital was a copy of Dr Ly's notes, which did not contain a diagnosis of her condition. Dr Ly explained:

'I did not write a diagnosis in the notes but in my mind I believed it would be respiratory distress secondary to increased tracheostomy secretions.'

(Exhibit C6b, p3)

- 5.2. There is also some confusion about Mrs Martin's condition when she returned to Julia Farr Services. There is a note in the Julia Farr Services clinical record at 4:30am which states:

'Tracheostomy tube blocked with secretions was the diagnosis at RAH. Blood present in secretions is the result of Julie biting her tongue.'

(Exhibit C8b)

- 5.3. Dr Ly said he was not aware of any such blood. He said:

'I do not recall saying this and I do not recall seeing any blood come from her mouth.'

(Exhibit C6b)

- 5.4. Dr Ly said that the occurrence of the 'coffee ground vomit' was significant because:

'If I was advised of any coffee ground vomitus my examination would have differed as I would have done a perirectal examination to see if there was any blood in the bowels. I would have asked for a medical consult to query haematemesis and there would have been consideration to perform an endoscopy.'

(Exhibit C6b, p3)

I find this explanation difficult to accept, since there is an entry made by him in the Royal Adelaide Hospital Clinical Record which states:

'Thick secretions from tracheostomy – coffee ground.'

- 5.5. Dr Ly explained his failure to admit Mrs Martin to hospital as follows:

'Julie Martin was not admitted to hospital because my assessment showed there was no evidence of aspiration pneumonia or infection. I believed that she was safe to return to Julia Farr for a period of monitoring. I could not think of a medical reason to admit a lady who had blocked secretions in her trachea that the Julia Farr Centre could manage, or try to manage. If her condition declined then she would be returned to hospital. Dr Wadsworth and the husband also supported this decision. A copy of my examination (UR 9) and the results of the tests that were conducted were sent to Julia Farr.'

(Exhibit C6b, p3)

- 5.6. Dr Ly also referred to the fact that he had not been advised of the difficulties with inserting the PEG tube which occurred earlier that day, and that if he had:

'If I had been advised of the difficulties encountered with the insertion of the new gastrostomy tube, or even more so the haematemesis, my examination would have been different. I would have had a closer look at the gastrostomy tube to look for signs of trauma and to see whether it was functioning. I would have asked for further information which was documented subsequently (by Dr Angley).'

(Exhibit C6b, p3)

- 5.7. It is not possible to examine the veracity of any of these statements, since Dr Ly has apparently left the jurisdiction, and even his mother does not know his present whereabouts, except that he is apparently in the west of England (Exhibit C7a).
- 5.8. I did hear evidence from Dr Mark Wadsworth, the person with whom Dr Ly alleges he discussed Mrs Martin's case. Dr Wadsworth told me that he had no recollection of Mrs Martin or the fact that Dr Ly had discussed her case with him. He said that if Dr Ly had informed him of her history, the fact that the chest X-ray showed no pneumonia and the white blood cell test was normal, and that he planned to speak to Mr Martin with a view to returning Mrs Martin to Julia Farr Services to be further observed and followed up by the medical officer in the morning, he probably would have approved Mrs Martin's discharge, even if it did occur at about 3:30am (T105).
- 5.9. Dr Wadsworth acknowledged that it was 'unusual' to discharge a patient who was still unwell, without a diagnosis, on the basis that if she failed to improve, she should return to hospital. He acknowledged that it would have been more appropriate to keep Mrs Martin at the Royal Adelaide Hospital for observation, and for more extensive investigation in the morning in the event of lack of improvement (T109).
- 5.10. However, there were a number of aspects of Mrs Martin's condition about which Dr Wadsworth was apparently not advised. He referred in particular to the note that Mrs Martin's pulse was still elevated at 145 beats per minute compared with 120 beats per minute when she left Julia Farr Services, her respirations were also rapid at 40 per minute compared with 18 per minute at Julia Farr Services, and that the blood test disclosed that although her white blood cell count was within normal limits, the bicarbonate ( $\text{HCO}_3$ ) level was low at 15 which suggested that Mrs Martin was becoming acidotic, which is a very dangerous sign.
- 5.11. Dr Wadsworth told me, and I accept, that had he been made aware of this information he would have suspected that there was an 'unrecognised metabolic process' taking place, and that he would have commissioned further investigations and in particular abdominal X-rays which may have disclosed the nature of Mrs Martin's problem, as indeed they did the following day (T112).
- 5.12. In the event, Mrs Martin returned to Julia Farr Services at around 3:30am on 22 March 2001. The nursing staff were so concerned about her condition that they called Dr Jain in again and Dr Jain arrived at around 7:30am. She noted that Mrs Martin had

returned from the Royal Adelaide Hospital without a diagnosis, and with no improvement in her condition. She told me that she was 'very surprised' at these events (T65).

- 5.13. On examination, Mrs Martin was cold and clammy, her peripheries were poorly perfused, her oxygen saturation was low at 92%, her breathing was shallow and rapid, her abdomen was soft with no distension and the bowel sounds were absent.
- 5.14. Dr Jain was so concerned about Mrs Martin's condition that she awaited Dr Goodall's arrival at Julia Farr Services and asked her to see Mrs Martin immediately. Dr Goodall examined her at around 8:30am, and made similar observations. Dr Goodall noted in the clinical record:

'? Abdominal 2° (secondary) to difficult tube insertion.'

(Exhibit C8b)

Dr Goodall explained this entry as follows:

'Mrs Martin was obviously unwell. She had been sent to hospital the previous night having presented with respiratory systems for assessment of a respiratory cause for being unwell. They carried out a chest x-ray and found no respiratory cause. On examination I could find no focal signs within the lungs. I had carried out the ECG by this time which had shown no obvious heart cause for this. A cause of somebody being unwell is something that we term an acute abdomen. It was impossible for Julie to tell us whether she had abdominal pain or where she had pain. It's just one of the possibilities and I felt that other possibilities had already been excluded. A gastrostomy tube insertion is a procedure and any procedure can cause problems.' (T92)

- 5.15. Dr Goodall was concerned that Mrs Martin should return to the Royal Adelaide Hospital, but after discussing her case with Mr Martin, she decided not to transfer her back at that stage. She said that it was a '50/50' proposition, but as there had been no change in her clinical picture, and as Mr Martin thought that the nursing staff at Julia Farr Services were better able to deal with Mrs Martin's special needs, she decided to keep her there (T82).
- 5.16. Dr Goodall said that she checked on Mrs Martin's condition again at around noon, and that there had been no change. She examined Mrs Martin again at around 2:15pm and noted that her condition had deteriorated. Her oxygen saturation had dropped to 70%, her respiratory rate had increased to 60 breaths per minute and Mrs Martin was vomiting frank blood (haematemesis). She also noted 'early cyanosis and peripheral

shutdown'. Dr Goodall diagnosed a possible gastric bleed, and decided to transfer Mrs Martin to the Royal Adelaide Hospital without delay (T83).

5.17. An ambulance was called and the transfer took place at 2:30pm.

## 6. Return to the Royal Adelaide Hospital

6.1. When Mrs Martin arrived at the Royal Adelaide Hospital, she was examined by Dr Christopher Angley who is a Consultant in the Emergency Department. Dr Angley's statement (Exhibit C5a), records his findings as follows:

'On my examination I found her to be shocked and cyanosed. She had a noisy airway with gurgles. Blood pressure was initially unrecordable then possibly 60 mm of mercury systolic. O2 saturations were unrecordable and auscultation of the chest revealed large airway gurgles. Examination of her tracheal site revealed brown coffee ground material in and around the tracheostomy. Her abdomen was slightly distended and possibly guarded. She had poor peripheral circulation and pulses, but had a good femoral pulse. She appeared to be in a chronic vegetative state.

I have quoted in my notes an entry from the Julia Farr case notes referring to the falling out of the gastrostomy tube and the insertion of a new one. I could have possibly rung someone at Julia Farr but I cannot recall definitely.

As part of treatment I applied suction to the tracheostomy tube and changed this tube to a cuffed tube. Intravenous access was established via a central venous pressure line to the right subclavian vein. Blood gases and blood tests were performed. A chest and abdominal X-ray were arranged. Free gas was visible on the X-rays but I cannot recall if this was seen on both the abdominal and chest X-ray and I assume this was my own assessment. I cannot find any report on these X-rays in the notes. I consulted the haematemesis melena registrar that is the gastroenterology registrar, the medical registrar and the surgical registrar. Though I have not written this in the case notes, I did commence intravenous resuscitation/fluids and intravenous antibiotics. I saw Mrs Martin in C1 which is the resuscitation room where other doctors were present. I do not recall who these doctors were.

I assessed that her most likely problem was a misplacement of the gastrostomy tube and a possible perforation of an abdominal viscus. I was to await the arrival of the surgical registrar.

The abdominal X-ray does not show if the gastrostomy tube has been correctly placed. I have no record of whether I checked for myself whether the gastrostomy tube was in the correct position.'

(Exhibit C5a, p2)

6.2. Mrs Martin was reviewed by Dr Hollington, the Surgical Registrar, who discussed Mrs Martin's condition, which by that stage was absolutely desperate, with her family including her husband. He advised that the only available treatment was abdominal

surgery by way of laparotomy which posed a very high risk of mortality in any event, and even if successful would result in severe complications to Mrs Martin's condition.

- 6.3. Having regard to this advice, the family understandably decided that the best course was for Mrs Martin to receive palliative care and intravenous antibiotics. As expected, Mrs Martin's condition continued to deteriorate and she died on 25 March 2001 at approximately 7:20am.

## 7. **Issues arising at inquest**

- 7.1. I received the benefit of an expert assessment of the treatment given to Mrs Martin by Mr Richard Sarre, a very experienced surgeon who specialises in surgery involving the gastrointestinal tract. Mr Sarre is a Senior Medical Consultant at Flinders Medical Centre.

- 7.2. Mr Sarre commented as follows:

'The principal concern in this case is the fact that leakage around the gastrostomy tube was not recognised at an early stage at which point some remedial action may have been possible. Mrs Martin was in a vegetative state and totally reliant on nursing care to keep her alive. She was unable to communicate any distress or pain other than through the physical findings noted by the various nurses and doctors. Clearly this made assessment extremely difficult.

When she was first referred to the Royal Adelaide Hospital, the referral note did indicate that the gastrostomy tube had been changed however this was not thought to be a likely cause of her problem. It appears that Mrs Martin did have a history of respiratory problems and the natural assumption was that she had some degree of pneumonia or other complication in her chest. The chest X-ray was clear and according to the report, there was no observation of free gas in the abdomen on that first X-ray. It is clear from the notes that she was unwell when she was returned to the Julia Farr Centre arriving back at 3:30am rather unexpectedly. At that time, no specific diagnosis had been made and in my opinion, it would have been wiser to have kept her under observation at the Royal Adelaide Hospital until morning when further assessment would have been made.'

(Exhibit C13, p2)

- 7.3. Having heard the comments of Dr Wadsworth concerning this issue, and it having been confirmed by Mr Sarre, I conclude that the investigation of Mrs Martin's condition at the Royal Adelaide Hospital in the early morning of 22 March 2001 was inadequate. It seems to me that Dr Ly may have focussed too much of Mrs Martin's respiratory condition, rather than casting the net more widely and looking for an abdominal problem. It would seem that he overlooked the clues identified by Dr

Wadsworth, in particular her elevated pulse, respiratory rate, and the low bicarbonate level indicating acidosis.

- 7.4. Even if these omissions were reasonable, I remain of the view that it was inappropriate to send Mrs Martin back to Julia Farr Services in circumstances where she was still clearly unwell, and where no diagnosis of her condition had been made. To send a patient back in those circumstances on the basis that if she failed to improve she should return was, in my view, inappropriate.
- 7.5. Mr Sarre also commented adversely on Dr Goodall's failure to contemporaneously record the replacement of the PEG tube in the clinical record. As it transpired, Dr Jain mentioned in her letter to the Royal Adelaide Hospital that the tube had been replaced, but did not mention that Dr Goodall had experienced any difficulty in so doing. She told me that had Dr Goodall noted that, she would have mentioned it in the referral letter (T69).
- 7.6. If this had occurred, there is a chance that Dr Ly may have picked up on that issue and explored an abdominal cause for Mrs Martin's condition more thoroughly. As Mr Sarre commented:
- 'This may have led to a delay in diagnosis.'
- (Exhibit C13, p2)
- 7.7. I have already mentioned the fact that at various stages during 21 and 22 March 2001, it was observed that Mrs Martin had vomited 'coffee ground vomit'. This is a classical indication of gastric bleeding, as when blood passes into the stomach the gastric juices alter its composition so that it becomes very dark and takes on the appearance of coffee grounds. Both Mr Sarre and Dr Wadsworth told me that 'coffee ground vomit' was often a misdescription of what had occurred. In this case, Mr Sarre told me that having regard to the findings at post-mortem, namely that the stomach only contained '200mls of dark green fluid extending to the duodenum', he doubted that Mrs Martin had been vomiting blood and that these observations were most likely a red herring (T139).

## **8. Conclusions**

- 8.1. Having regard to the totality of the evidence before me, it is appropriate to conclude that the peritonitis which caused Mrs Martin's death was the result of a perforation of the tissue surrounding the stoma which occurred when the PEG tube was reinserted in the early afternoon of 21 March 2001. There is evidence that RN Moody attempted to replace the tube and was unsuccessful, and that Dr Goodall then replaced the tube with difficulty. It is not possible to conclude which of these attempts may have caused the damage, perhaps the damage was cumulative.
- 8.2. Mr Sarre explained that this is an unusual event, but he was unable to explain how else the injury might have occurred. It is noted that Professor Byard found no evidence of ulceration or perforation at any other point on the gastrointestinal tract. In particular, Mr Sarre was at pains to point out that the fact that trauma occurred does not imply that there was any lack of appropriate care or professional skill involved in the reinsertion. In his report he said:

'In the event, Dr Goodall was able to reinsert it (the autopsy confirms that the tube was correctly placed) but that there had been some disturbance of the surrounding tissues causing leakage from the gastrostomy site into the peritoneal cavity. In my assessment, there does not appear to be any breach of normal practice regarding replacement and testing of the siting of the gastrostomy tube and indeed my impression from reading the Julia Farr notes, is that her management overall had been exemplary ... I will stress again the extreme difficulty in assessing her condition in view of her totally dependent state.'

(Exhibit C13, p3)

## **9. Recommendations**

- 9.1. The issue of whether there should be a requirement that PEG tubes be regularly replaced rather than replaced only 'as required' arose during the inquest. Ms Cliff has since advised me that although there has been little research on the topic, what information is available suggests that no advantage is gained by changing tubes before a problem has developed. I accept that advice. Ms Cliff also advised that Julia Farr Services has, with the support of medical staff and management, developed a new protocol which will require X-ray examination to confirm tube position and lack of leakage should occur in cases of unusually difficult tube insertion, when the therapist is unable to auscultate borborygmus (flatulence), or where insertion has followed

accidental removal of the tube. This is a positive development which is to be welcomed.

9.2. I am always reluctant to make recommendations in areas which involve the exercise of clinical judgment. However, I consider that the discharge of Mrs Martin back to Julia Farr Services at 3:30am, when her problem had not been diagnosed, and when she was still showing signs that she was seriously ill, it was inappropriate. The staff at the Royal Adelaide Hospital should have known that there was no medical staff on duty at Julia Farr Services to monitor her condition. I am unable to make a specific recommendation which might avoid this occurring again. However, I recommend that the Chief Executive Officer of the Royal Adelaide Hospital consider whether the procedures in the Emergency Department of the hospital can be amended to ensure that better discharge planning occurs to prevent such a recurrence.

9.3. Dr Goodall's failure to make a note

This issue has arisen in many previous inquests. Experienced clinicians have given expert evidence time after time about the importance of making informative, contemporaneous entries in the clinical record. Mr Sarre has given similar evidence in this case. Dr Goodall's explanation for what occurred here was as follows:

'A. I didn't make an entry immediately. I went to collect the files from where the file storage is and Mrs Martin's notes were not present in file storage. Somebody informed me that somebody else was using them at the time. I went to retrieve them and was paged for an emergency elsewhere in the centre. I chose to go and deal with the other emergency intending to return later that afternoon to make an entry in the notes.

Q. Did you ultimately make an entry in the notes.

A. I did, but not until the following morning.

Q. Is there any reason why you couldn't make or didn't make the entry later that day, on 21 March.

A. I just forgot that I had to do it.' (T77)

9.4. I accept Dr Goodall's explanation, and sympathise with her predicament. However, it cannot be ignored that, as a result of Dr Goodall's failure to make a note, Dr Jain was unaware that Dr Goodall had encountered any difficulty with inserting the PEG tube, so she did not mention this in her referral letter to the Royal Adelaide Hospital. Dr Ly said that had he been advised of the difficulty, he might have been more inclined to look for an abdominal cause for Mrs Martin's condition. Whether that is true, and

whether it would have affected the outcome cannot be determined in the state of the evidence. Frankly, I doubt it.

- 9.5. However, I think that it is appropriate to made a recommendation on this topic. I recommend that Dr Goodall should review her clinical practice to ensure that she always makes appropriate contemporaneous entries in the casenotes. I also recommend that Julia Farr Services should review their systems to ascertain whether the difficulties Dr Goodall encountered in accessing the clinical record can be avoided or minimised.

*Key Words: PEG Tube; Hospital/Medical Treatment; Persistent Vegetative State*

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

*Seal the 5<sup>th</sup> day of November, 2003.*

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*Coroner*