
**FINDINGS, RECOMMENDATIONS and COMMENTS of Coroner
Rod Chandler following the holding of an inquest under the
Coroners Act 1995 into the death of:**

Trudi Maree Forward

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Record of Investigation into Death (With Inquest)

Coroners Act 1995

Coroners Rules 2006

Rule 11

I, Rod Chandler, Coroner, having investigated the death of Trudi Maree Forward with an inquest held at Hobart in Tasmania make the following findings.

Hearing Dates

4, 5 and 6 December 2017; submissions received by 10 April 2018.

Representation

Counsel Assisting the Coroner: Ms Yolanda Prenc

Counsel for Tasmanian Health Service (THS): Mr Turner

Counsel for Dr Gurusinghe: Mr Hilliard

Counsel for Mr Stary: Ms Darcey

Introduction

On 27 August 2014 Mrs Trudi Maree Forward died at the Royal Hobart Hospital (RHH) in Hobart. An inquest has been held concerning her death and these are my findings from that inquiry.

Background

Mrs Forward was aged 53 years and the mother of three children, now all adults. She was divorced and lived alone at 104 Quarantine Road in Norwood, a suburb of Launceston. She was a retired registered nurse.

Mrs Forward had a significant medical history. It included obesity, Type II diabetes, and Korsakoff dementia likely to be attributable to prolonged alcohol abuse. She had previously received laparoscopic treatment for removal of her gallbladder and for treatment of gastro-oesophageal disease. She had also received inpatient treatment in the psychiatric unit of the Launceston General Hospital (LGH) for mental illness, apparently related to alcohol abuse and memory loss.

Events Leading to Death

The records of Ambulance Tasmania (AT) show that at 6.27am on Tuesday 19 August 2014 paramedics attended at Mrs Forward's home. She complained of severe abdominal pain along with nausea, vomiting and a loose bowel motion. The pain had its onset at around 3.00am. Mrs Forward was taken to the LGH arriving at 7.09am.

Mrs Forward was seen in the Emergency Department (ED). She gave a history of *"acute severe abdominal pain this early am. 10/10, sharp pain (constant) to back."* Her vital signs were recorded. Blood pressure was 195/129 mmHg, heart rate was 90 bpm, respiratory rate was 20 bpm and her temperature was 36.7°C. Chest and abdominal x-rays were reported as unremarkable. A CT scan was recommended if clinical concern was ongoing. Blood tests showed a white cell count of 27.2 with neutrophils of 23.2. There was a metabolic acidosis (a blood pH of 7.27 when normal is in the range of 7.35 to 7.45) and an elevated lactate of 5 mmol/L (normal is 0.5 to 1 mmol/L). The blood glucose level was 26.8 mmol/L. At 9.06am abdominal and pelvic CT scans were carried out with intravenous contrast. The radiologist was Dr Robert Heng. The CT referral form recited this clinical history: *"Acute abdominal pain, guarding, nausea, background of diabetes, alcoholic, dementia, ?pancreatitis."* Dr Heng gave a verbal report on the scans to the ED where it was recorded as: *"Nil surgical emergency."* The subsequent written report concluded: *"No focal abnormality is identified to explain the clinical presentation."*

At 11.15am Mrs Forward was seen by surgical registrar, Dr D. It was her impression that Mrs Forward was suffering from severe gastritis. She directed that Mrs Forward be admitted to the general surgery ward and that pain relief be maintained. Mrs Forward remained unwell and she was again reviewed by Dr D in the afternoon. Her pain had persisted despite the analgesia. Dr D then contacted Dr Nishanthi Gurusinghe, the on-call general surgeon, and sought her assistance. Shortly after 4.00pm Dr Gurusinghe examined Mrs Forward. She considered her to be extremely unwell and that her pain was disproportionate to the clinical and CT findings. She decided to seek out Dr Heng with a view to him reviewing the radiology. However, he had finished his day's work and had left the hospital. Dr Gurusinghe then spoke in person to radiologist, Dr de Silva, and asked him to review the radiology. She could not recall whether she advised Dr de Silva that she suspected ischaemia of the bowel. Dr de Silva confirmed the findings made by Dr Heng.

At this point Dr Gurusinghe made the decision to undertake a laparoscopy. She did so because she remained concerned that Mrs Forward had an ischaemic bowel. Her level of pain along with her acidosis and high lactate were all indicators of this possibility. The laparoscopy proceeded at

6.00pm. There was no obvious sign of ischaemia on the immediate view. Dr Gurusinghe then utilised grasping instruments to make a closer inspection of the small bowel along its entire length. In her view there were not any signs of ischaemia from one end to the other. In the operation notes Dr Gurusinghe specifically recorded: "*distal ileum ++contractile + mottled; no ischaemia; no free fluid.*" She also recorded the colon, stomach and liver to have all been normal. Dr Gurusinghe explained that the term "*mottled*" meant blotchy and not dusky.

In Dr Gurusinghe's opinion the laparoscopy was not positive for any signs of ischaemia and left her to conclude that Mrs Forward's presentation was attributable to either pancreatitis or an infection. It was decided to manage her with pain relief and IV fluids and to keep her under observation.

Mrs Forward remained unwell overnight but Dr Gurusinghe was not called. Instead she was managed by interns who attempted to control the pain. It was recorded that at 5.35am Mrs Forward complained: "*My tummy is going to explode.*" At 6.49am there was a MET call when her oxygen saturation level fell below 82%.

At 8.00am each Wednesday the LGH holds a radiology meeting where the ongoing management of usually elective patients is discussed. It is attended by radiologists and a range of other medical specialists including oncologists, surgeons and gastroenterologists. Dr Gurusinghe attended the meeting on 20 August. At about 8.30am she requested a review of Mrs Forward's radiology because of her ongoing concerns. When the CT slides were presented colorectal surgeon Dr Hung Nguyen observed an occlusion of Mrs Forward's superior mesenteric artery. This became obvious to others present and it was promptly agreed that this explained Mrs Forward's signs and symptoms and that it required an urgent surgical response, preferably by a vascular surgeon.

The LGH does not have a resident vascular surgeon and instead vascular surgery services are provided on a state-wide basis by a Vascular Surgery Unit (VSU) based at the RHH. The Unit is supported by three vascular surgeons, one of whom is on-call at all times. Apart from the provision of surgical services the Unit is also required to provide an outreach service to LGH patients. This requires one of the Unit's surgeons to work at the LGH for two days per week to attend to patient consultations, some short stay surgery and some interventional endovascular radiology procedures. Dr Nguyen has had a long working relationship with vascular surgeon Mr David Stary and he was aware that he may be in Launceston on Wednesday 20 August. He offered to telephone Mr Stary to seek his advice. Dr Gurusinghe accepted the offer and stood by Dr Nguyen whilst the call was made.

It was Mr Stary's evidence that he does not have any memory of a conversation with Dr Nguyen concerning Mrs Forward. However, I am satisfied that it took place and I accept Dr Nguyen's account of it. He said that he outlined Mrs Forward's circumstances to Mr Stary and sought his advice on whether she should be surgically treated in Launceston with Mr Stary's assistance or whether she should be transferred to the RHH. Dr Nguyen said that Mr Stary advised him that the treatment could be "*complicated*" and that it would be best for Mrs Forward to be transferred. Dr Nguyen accepted this advice although it had been his hope, given the urgency of the situation, that "*perhaps something (could) be done straightaway....and....we (didn't) have to go through the transfer process.*"

Following the conversation with Mr Stary, Dr Gurusinghe telephoned the RHH and spoke to Mr Mark Hamilton, the on-call vascular surgeon. This was at about 8.45am. Dr Gurusinghe advised of Mrs Forward's diagnosis and requested her transfer to the RHH. There was some discussion concerning the possibility that Dr Gurusinghe carry out the surgery in Launceston but she had had minimal experience with the procedure and did not feel comfortable proceeding with it. Mr Hamilton therefore agreed to accept Mrs Forward's transfer to the RHH.

The LGH records show that at 9.00am heparin treatment was commenced for Mrs Forward as instructed by Mr Hamilton. At 9.30am Mrs Forward was seen by Dr Gurusinghe who advised her of her diagnosis and the decision to transfer her to the RHH for surgery. At 10.05am she was reviewed by an Intensive Care Unit (ICU) registrar preparatory to the transfer. AT was contacted at 10.28am and requested to carry out the transfer. Dr Simon Brown is AT's Director of Aeromedical and Retrieval (previously he was a Professor of Emergency Medicine at Royal Perth Hospital). It was his evidence that Mrs Forward's transfer was categorised as urgent, meaning "*as soon as you've got a free vehicle.*" He said that the most urgent cases are classified as 'time critical' meaning "*pull out all the stops.*" For Mrs Forward an ambulance was prepared and dispatched to the LGH arriving at 10.55am. The ambulance then left the LGH at 12.34pm and arrived at the RHH at 2.18pm.

By the time Mrs Forward arrived at the RHH her condition had deteriorated further. A CT angiogram confirmed the presence of thrombus within the superior mesenteric artery. It also identified an aortic arch calcified plaque with an attached thrombus causing a 50% narrowing of the aorta. Beginning at 7.06 that evening Mr Hamilton carried out a laparotomy with thrombectomy of the superior mesenteric artery. Blood flow was successfully restored. A 1.5 metre portion of the small bowel was then resected by surgeon, Dr Emilio Mignanelli. At 11.10pm Mrs Forward was returned to ICU.

In the ICU Mrs Forward was stable overnight. The following day a re-look laparotomy was carried out. A pulse was noted in the superior mesenteric artery. A further portion of the small bowel was resected. There was another re-look laparotomy on 22 August and again a pulse was present in the mesenteric superior artery. At this point both the small bowel and the large bowel appeared viable. Mrs Forward's condition remained stable over the next three days and on 25 August she was discharged from ICU. However, the following day she became seriously unwell. Another re-look laparotomy was performed. It showed that the small bowel was not viable and it was considered that Mrs Forward could not be saved. Palliative care was initiated and Mrs Forward died at 4.25pm on 27 August 2014.

The Cause of Death

Dr Donald Ritchey is a forensic pathologist. He carried out a post-mortem examination and produced a report which was put into evidence. He also gave evidence in person.

In his report Dr Ritchey expresses the opinion that the cause of Mrs Forward's death was sepsis with multiple organ failure following extensive small bowel infarct due to a superior mesenteric artery thrombus. He cited significant contributing factors to be Type II diabetes, obesity and chronic alcohol dependence.

In cross-examination Dr Ritchey confirmed that at autopsy he observed an organised thrombus within the superior mesenteric artery which appeared to completely occlude the artery and which he considered most likely had formed within the artery itself and had not originated as an embolus from a thrombus formed in the aortic arch. He accepted that this thrombus had been present for at least some hours prior to death. He also acknowledged that there was evidence indicating that a thrombectomy of the superior mesenteric artery had been carried out by Mr Hamilton on 20 August with the apparent restoration of blood flow. This exchange then took place between Dr Ritchey and counsel for the Tasmanian Health Service (THS):

Counsel: "So, if we are looking at the cause of death, the fact that there was a - sorry, an occlusion by way of a thrombus in the superior mesenteric artery on 19 August, and in your report, you referred to it being missed on a CT scan. That appears to have been, for want of a better way of fixing it, fixed by the thrombectomy?"

Dr Ritchey: "Yes, if I understand what you've told me correctly, yes."

Counsel: *"And, in that case, one could not say that a cause of death was a thrombus that was extant on 19 August 2014?"*

Dr Ritchey: *"No, I don't think that probably is fair to say. There is no question that there was a thrombus, at that point, and that certainly has set into motion this series of events that have resulted in repeated returns to the operating theatre, to have progressively more small bowel removed because of its necrosis. So there is no question that, there's no question that that contributed."*

Counsel: *"And the extent to which it contributed cannot now be said?"*

Dr Ritchey: *"Well no, that's right. It's not possible for me to know."*

Counsel: *"It's just one of a number of factors which could be said to have been in the mix for the purposes of the untimely death of Mrs Forward?"*

Dr Ritchey: *"There's no question that the root cause of Mrs Forward's death is a thrombus in the superior mesenteric artery."*

Counsel: *"And that's the one that occurred subsequent to the thrombectomy?"*

Dr Ritchey: *"Well again I don't know - I don't know about which one - they apparently all caused her some significant disease and once, you know, an organ such as the intestine starts to die because of lack of blood flow a person is at risk of death so it's not really possible for me, even with a retroscope, to look back at the case and say this thrombus produced 20% and this thrombus produced 80%. I mean that's sort of a meaningless exercise but the root cause of her death is a blood clot in the superior mesenteric artery."*

Counsel: *"As identified by you at autopsy?"*

Dr Ritchey: *"Yes, as seen at autopsy and as seen clinically during multiple examinations."*

Counsel: *"I'm just struggling with the notion that a thrombectomy was performed that's removed the thrombus as at the time of the operation and then we know subsequently, several days later, two days later there's pulse in the superior mesenteric artery. It's flowing in the superior mesenteric artery so it's the thrombus forming subsequently that has caused the death; that's what you've identified in your report?"*

Dr Ritchey: *"I don't understand why it seems so difficult to understand. I saw a thrombus at autopsy. It's not really possible for me to know by looking at it at autopsy when it formed-*

Counsel: *"I accept that but it's not -?"*

Dr Ritchey: *"..... I'd like to continue please; and it is well established that there was a thrombus that set this chain of events in motion, all right, and so determining which thrombus is perhaps more responsible I don't think is a meaningful exercise."*

Counsel: *"And that leads to my question which is this: the thrombus extant on the 19th, 20th August 2014, may have made a contribution to death but the extent of that contribution cannot simply be calculated?"*

Dr Ritchey: *"That's correct, not any more than the one that I saw at autopsy can."*

A consideration of the relevant evidence leads me to make these findings:

- That at around 3.00am on 19 August 2014 Mrs Forward developed a thrombus of her superior mesenteric artery which condition was not diagnosed until about 8.30am on 20 August.
- That in the early evening of 20 August Mr Hamilton performed a thrombectomy which successfully restored blood flow within the superior mesenteric artery. At the same time a section of the small bowel was resected.
- That a further portion of the small bowel was resected the following day. Both this resection and the earlier resection were necessary because of infarction or necrosis of the small bowel attributable to the thrombosis of the superior mesenteric artery.
- That following a period of apparent stability in her condition Mrs Forward deteriorated on 25 August. On that day it was determined that her small bowel was not viable and palliative care was commenced.
- That Mrs Forward died in the late afternoon of 27 August 2014.
- That at post-mortem Dr Ritchey found an occlusive thrombus at the origin of the superior mesenteric artery. It is not possible to say when this thrombus developed save that it had been present for some hours prior to death.
- That the cause of Mrs Forward's death was sepsis and multiple organ failure. Those conditions were attributable to infarction or necrosis of the small bowel. The infarction or necrosis was in turn partly attributable to the thrombus of Mrs Forward's superior mesenteric artery diagnosed on 20 August 2014. It was also in turn partly attributable to

that thrombus detected by Dr Ritchey at post-mortem. However, it is not possible to make a finding upon the relative contributions made by each of the thrombus to the infarct or necrosis of the small bowel.

Issues for Consideration

The superior mesenteric artery is a major abdominal vessel which supplies arterial blood to the organs of the mid-gut including the small bowel. If it becomes occluded or blocked ischaemic necrosis or infarction of the small bowel will result. This is a medical emergency with a mortality rate of 60 - 80%. Survival is enhanced if the condition is quickly diagnosed and treated, desirably within six hours of the occurrence of the occlusion. After that time the likelihood of a successful outcome progressively diminishes.

In Mrs Forward's case I have found that her superior mesenteric artery became occluded at around 3.00am on 19 August 2014. It was a further four hours before she presented at the LGH. However, surgery to treat her condition did not occur until a further 36 hours had elapsed. In these circumstances it is necessary that I give consideration to the reasons for this lengthy delay in light of my finding that her initial thrombus of the superior mesenteric artery was a contributor to the infarct or necrosis of her small bowel which led to her death. These are the issues which arise:

1. The delay in diagnosis.
2. The decision to forgo the LGH as the surgery venue.
3. The inter-hospital transfer.
4. The pre-surgery interval at the RHH.

I will address each of these in turn.

The Delay in Diagnosis

The diagnosis of an occluded superior mesenteric artery was not made until about 8.30am on 20 August 2014, that is over 25 hours following Mrs Forward's presentation to the ED. The evidence shows that the delay was clearly attributable to multiple factors being:

- a) The attending clinician in the ED having the impression that Mrs Forward was suffering from pancreatitis and the failure of that clinician to identify superior mesenteric artery

ischaemia as a differential diagnosis. In this context I am mindful of this evidence from Dr Brown concerning diagnosis in an ED of superior mesenteric artery ischaemia:

“It is a common miss that we try to be alert for...it’s infrequent, but in emergency we often don’t worry about the frequency, we have the list of the life-threatening diagnoses, even though they are very uncommon, we try not to miss those, and so it’s one of those things, acute onset, and undiagnosed abdominal pain, particularly in older people, we’re always supposed to be thinking about mesenteric ischaemia, it’s one of those things. But despite that, it is something which repeatedly gets missed...”

Mr David Cottier is the Head of Vascular Surgery at the RHH. In a similar vein to Dr Brown he said:

“I accept the proposition that acute mesenteric ischaemia in the incidence of presentations to the Emergency Department as a cause of abdominal pain is very uncommon...nevertheless it’s a life threatening condition that must be at least entertained and considered and this presentation that she had, in my mind...should have been on the differential diagnoses.”

Dr Cottier would have expected a surgeon caring for Mrs Forward to have made mesenteric ischaemic a differential diagnosis as well as a doctor in ED *“if he’s a very good doctor...it depends upon the clinical acumen and experience.”*

- b) The failure on the part of the ED clinician to identify superior mesenteric artery ischaemia as a differential diagnosis or impression on the CT scan referral.
- c) The failure on the part of radiologist Dr Heng to identify the occluded superior mesenteric artery on the CT scan. However, I acknowledge that this occurred in the context that pancreatitis was under consideration and not an occluded superior mesenteric artery. Had this latter condition been referred to on the referral then it is likely in my view that the diagnosis would have been made upon the scan at that time.
- d) Dr D’s opinion that Mrs Forward was suffering from gastritis. However, it needs to be noted that this diagnosis was likely influenced by the apparently normal CT scan.
- e) The absence of any clear signs of ischaemia from the laparoscopy undertaken by Dr Gurusinghe. Although it was observed by Dr Gurusinghe during the procedure that portion

of the small bowel, specifically the ileum, was 'blotchy' it was her opinion that the ileum remained contractile and it did not suggest ischaemia.

- f) The failure on the part of the medical staff caring for Mrs Forward on the night of 19 August to report upon her condition notwithstanding evidence of ongoing and severe pain which was resistant to analgesia and the need for a MET call made the following morning.

The foregoing preceded the radiology meeting in the morning of 20 August which led to the correct diagnosis being made. It was at this point that it should have been evident to all that Mrs Forward's situation was dire and that she required surgery as a matter of real urgency.

The Decision to Forego the LGH as the Surgery Venue

Correctly, Drs Gurusinghe and Nguyen recognised that Mrs Forward required the services of a vascular surgeon. This led to the phone call being made to Mr Stary.

I accept that at the time of the phone call Mr Stary was driving to Launceston from Hobart. He had left Hobart between 6.30am and 7.00am and was expecting to arrive in Launceston between 9.00am and 9.30am. His purpose for travelling on that Wednesday was to attend to a list of private patients from 1.30pm at St Vincent's Hospital. It is accepted that on that day Mr Stary was not rostered for any duties, either in Launceston or Hobart as a member of the VSU.

Notwithstanding that he was not on roster, Mr Stary did take Dr Nguyen's call. I accept that he did on occasions take calls from medical practitioners seeking his advice. In this instance he advised, as I have said, that it would be best for Mrs Forward to be transferred to the RHH for surgery by the on-call vascular surgeon. He did not offer to involve himself in Mrs Forward's care and this decision was the subject of some competing evidence.

Although Mr Stary contended that he had no recollection of the conversation with Dr Nguyen he nevertheless speculated that his advice for Mrs Forward to be transferred to Hobart would have been based upon these considerations:

- That the RHH has a level 5 accreditation for vascular surgery (the LGH is level 4) and as such was better resourced to provide the level of support and the continuity of care which Mrs Forward's condition was likely to have required.
- That the LGH did not have an interventional radiologist who could have assisted in the surgery.

- That he did not believe that the LGH was equipped with a thrombolytic catheter which he would have required if he had performed a thrombectomy on Mrs Forward. However, he acknowledged that the thrombectomy later undertaken by Mr Hamilton did not require a thrombolytic catheter but instead utilised a balloon catheter.

It was Mr Cottier's evidence that the surgery required by Mrs Forward was "*a fairly simple vascular surgical procedure*" and that the LGH did have the facilities to accommodate it. Although he was of the opinion that it would be preferable for such cases to be treated at the RHH it was his further opinion that if he had been in Launceston and available to treat Mrs Forward that he would have done so as it's a "*time critical situation*" and "*if I can avert further delay and I'm there, and I'm capable, then it's my duty to provide the care... I think that's the ethical and morally right thing to do.*"

Relevant to this same issue, Mr Hamilton expressed the view that the LGH did have the capacity to provide the surgery required by Mrs Forward. Further, it was the very clear tenor of his evidence that Mrs Forward's circumstances required urgent surgical intervention by a vascular surgeon and this should have been undertaken by Mr Stary at the LGH.

Both Mr Cottier and Mr Hamilton are experienced vascular surgeons. Both were familiar with the LGH and its capacity to facilitate the procedure required by Mrs Forward. I accept their joint opinion that the LGH could have been readily utilised in this instance.

At the time he took the call from Dr Nguyen, Dr Stary was approximately 30 minutes to one hour from the LGH. He did not have any commitments from that time until 1.30pm and was thus available to involve himself in Mrs Forward's care. He was aware of the delay in her diagnosis and of her need for urgent surgery. In my view the urgency of the situation was the over-riding consideration and it was, in my opinion, an error of judgement on Mr Stary's part to advise her transfer to the RHH rather than treat her himself in Launceston. Obviously it would have been open to transfer Mrs Forward to the RHH after her surgery for follow-up care including further surgery if this was considered to be in her best interests.

The Inter-Hospital Transfer

I have set out above the time line from when Mr Hamilton agreed to accept Mrs Forward's transfer up to the time of her arrival at the RHH. That period totals 5 hours 33 minutes and its analysis shows that:

- There was an interval of 1 hour 43 minutes after the transfer was accepted before the request for an ambulance was made to Ambulance Tasmania.
- 27 minutes elapsed before an ambulance attended at the LGH.
- There was a period of 1 hour 39 minutes from when the ambulance arrived at the LGH until its dispatch.
- The inter hospital journey took 1 hour 44 minutes, a period which clearly reflected the urgency of Mrs Forward's situation.

This analysis suggests two areas of concern. The first is the length of time taken to summon an ambulance. I accept that this may in part be explained by the need to stabilise the patient and to prepare her for transfer including the provision of medications. I accept too that these preparatory steps need to be well advanced before an ambulance request is made. However, even allowing for these matters, a period of almost one and three quarter hours appears excessive. The other area of concern is the time taken before Mrs Forward was dispatched. If one accepts that much of the initial delay was explained by the need to ready the patient for transfer before the ambulance was summoned why then did it take a further 1 hour 39 minutes to load her onto the ambulance before its dispatch? This was not explained on the evidence.

Messrs Hamilton, Cottier and Stary all expressed concern for the delay it took in transferring Mrs Forward to Hobart. Mr Stary detailed examples of patients of his who had also experienced lengthy transfer times. It was the general tone of their evidence that this is a relatively common and frustrating experience. Obviously, if it is the view of THS that vascular surgery services are best provided by a VSU sited in Hobart then it behoves the THS to have in place a patient transfer system which enables the speedy and efficient delivery of regional patients requiring urgent treatment to the RHH unit. Mrs Forward's experience is to my mind an illustration of a patient transport system which is functioning below par. It leads me to **recommend** that THS carry out a review of the circumstances of Mrs Forward's transfer which may identify shortcomings in the system and facilitate improvements.

The Pre-Surgery Interval at the RHH

Mrs Forward arrived at the RHH at 2.18pm on 20 August. Almost a further 5 hours elapsed before Mr Hamilton began the thrombectomy. In the interval a further CT angiogram was carried out. It confirmed the diagnosis. Besides this investigation there was not any other evidence forthcoming

which explained the apparent lengthy delay before the surgery commenced. Of concern, I note that at a meeting of a RHH mortality morbidity committee Mrs Forward's management in the RHH was discussed and it concluded that her presentation did not give any cause for concern or warrant any change to the VSU's protocols for management of vascular emergencies. In the circumstances of Mrs Forward's situation this is a surprising conclusion and suggests that a superficial and non-critical approach was taken to Mrs Forward's case.

Summary

When Mrs Forward presented at the LGH in the early morning of 19 August 2014 approximately 4 hours had elapsed since the occlusion of her superior mesenteric artery. This is a life threatening condition which mandates an urgent surgical response if death is to be avoided. The chances of survival are maximised if the condition can be treated within 6 hours of the occlusion. Unfortunately 36 hours elapsed before surgery was undertaken. I am satisfied, for the reasons explained, that this lengthy delay was the cumulative consequence of the following factors:

- The failure by LGH clinicians to identify mesenteric ischaemia as a differential diagnosis in the early stages of Mrs Forward's presentation.
- The failure to identify an occluded superior mesenteric artery from the CT scan carried out by Dr Heng.
- The unwillingness on the part of Dr Stary to involve himself in Mrs Forward's care and to perform a thrombectomy at the LGH.
- An apparent lack of urgency in transporting Mrs Forward to the RHH, such that over 5 and a half hours elapsed from the time her transfer was accepted and her arrival at the RHH.
- An apparent lack of urgency at the RHH in carrying out Mrs Forward's thrombectomy.

It needs to be recognised that mesenteric ischaemia has a mortality rate of 60-80% meaning that there was a high risk of death for Mrs Forward, even if she had received optimal treatment. It needs to be recognised too that at post-mortem Dr Ritchey identified a further thrombus in the superior mesenteric artery. In light of these matters it cannot be said that Mrs Forward would have survived if she had received optimal treatment for that thrombus diagnosed on 20 August 2014. All that can be said is that if she received optimal treatment for that condition there was a better prospect of her survival.

Formal Findings

Pursuant to s28(1) of the *Coroners Act* 1995 I find:

- a) The identity of the deceased is Trudi Maree Forward.
- b) Mrs Forward was born on 5 June 1961 and was aged 53 years.
- c) Mrs Forward died at the RHH on 27 August 2014.
- d) Mrs Forward died in the circumstances detailed in these findings; and
- e) The cause of Mrs Forward's death was sepsis and multiple organ failure attributable to infarct or necrosis of the small bowel and due to thrombus of the superior mesenteric artery.

Concluding Comments

I extend to Mrs Forward's family members my sincere condolences for her death. I trust that this inquest has been of some benefit to all of them in coping with it.

I wish to record my thanks to counsel-assisting, Ms Yolanda Prenc and to coroner's associate, Ms Katie Luck for their excellent work, both before and during the course of the inquest.

Dated: 30 May 2018

**Rod Chandler
Coroner**