IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2009 3886

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)
Section 67 of the Coroners Act 2008 (Vic)

Inquest into the Death of: MARY MULQUEEN

Delivered On:	12 February 2015
Delivered At:	Coroners Court of Victoria 65 Kavanagh Street Southbank, VIC 3006
Hearing Dates:	5 December 2012, 1 May 2013, 29-31 October 2013 and 2-4 April 2014.
Findings of:	JOHN OLLE, CORONER
Representation:	Mr James Fitzpatrick of counsel, instructed by Patrick Robinson & Co for the family of Mrs Mary Mulqueen. Mr David Goldberg of counsel for Peninsula Health. Mr Ben Ihle of counsel, instructed by Avant for A/Prof Russell. Mr John Snowden of counsel for Southern Health.
Police Coronial Support Unit	Senior Constable John Kennedy.

I, JOHN OLLE, Coroner having investigated the death of MARY MULQUEEN

AND having held an inquest in relation to this death on 5 December 2012, 1 May 2013, 29-31 October 2013 and 2-4 April 2014.

at Coroners Court Melbourne

find that the identity of the deceased was MARY MULQUEEN

born on 9 May 1952

and the death occurred on 9 August 2009

at Jessie McPherson Private Hospital, Monash Medical Centre Clayton, 246 Clayton Rd, Clayton 3168

from:

1(a) SMALL BOWEL ISCHAEMIA

2 DISTAL GASTRECTOMY

in the following circumstances:

1. Mary Mulqueen was born on 9 May 1952 and was 57 years of age at the time of her death. She is survived by her husband John and children Jodi Sissons and Alanagh Mulqueen, with whom she maintained close and loving relationships.

MEDICAL BACKGROUND

2. On 23 June 2008 Mrs Mulqueen attended upon general practitioner Dr Oi Chan presenting with a history of two days of vomiting following two weeks of nausea, feeling bloated in the abdomen and experiencing upper abdominal discomfort. Dr Chan ordered multiple tests including blood tests, a full blood examination, liver function test, C-reactive protein test, urea and electrolytes test, thyroid function test and carcinoembryonic antigen tests. He also ordered renal tract and abdominal ultrasounds, and prescribed Nexium 40mg daily for symptomatic relief of her gastric symptoms.[1] Mrs Mulqueen was monitored by Dr Chan and on 4 July 2008 she reported that she had put on 2kg of weight but was still experiencing spasmodic vomiting, nausea and lower abdominal pain.[2] Up until July 2008 Mrs Mulqueen continued to work at Myer three days a week.[3]

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[1] Statement of Dr Oi Chan, general practitioner, dated 22 December 2012, Coronial brief 6.

[2] Progress notes of Dr Oi Chan for patient Mary Mulqueen, Coronial brief 10.

[3] Inquest transcript 531-2.

3. Mrs Mulqueen was diagnosed with chronic gastric duodenal ulcer with scarring and distal gastric outlet obstruction, as a complication of her duodenal ulceration. As these diagnoses were unable to be resolved with conservative treatment, she underwent a distal gastrectomy and vagotomy at Frankston Community Hospital on 20 August 2008.[4] During the procedure, there were no unexpected findings or problems associated with the surgery reported. There was also no record of vascular injury or abnormal bleeding during surgery. The surgery was performed by A/Prof Colin Russell, with the assistance of surgical registrar Dr Yihua Xie. A/Prof Russell reported that the postoperative course was complicated with initial gastric emptying problems, which is not uncommon with the type of surgery performed. Mrs Mulqueen developed lobar pneumonia after surgery and was discharged from hospital on 2 September 2008. At that time she was consuming a normal diet.[5]

4. Mrs Mulqueen was reviewed post-operatively on a number of occasions, and was reported to be improving as expected. On 11 and 25 September 2008 she was reviewed as an out-patient by Dr Xie, who stated that on 25 September 2008 Mrs Mulqueen complained of continuing left lower quadrant pain. A/Prof Russell attended, reviewed Mrs Mulqueen and suggested no acute issues arising post-operatively. They arranged for Mrs Mulqueen to be further reviewed in four weeks, and in October 2008 she saw a dietician. In November 2008 Mrs Mulqueen was again seen by Dr Xie and reported diarrhoea and weight loss. Dr Xie's plan was for monthly medical reviews and ongoing support with the dietician, who reviewed her that day and introduced Codeine and Imodium into her diet. Dr Xie did not see Mrs Mulqueen after this review.[6]

5. On 15 December 2008 Mrs Mulqueen attended upon general practitioner Dr Peter Shea and complained of failure to gain weight and diarrhoea following her surgery on 20 August 2008. She was referred to a physician specialising in nutrition, but due to continuing problems was referred to general practitioner Dr Malcolm Scott, who admitted her to The Bays Hospital for total parenteral nutrition ('TPN'), which took place on 30 December 2008. That day she was seen by surgeon Mr Tilan Beneregama, who felt that there was no feasible surgical intervention. Mrs Mulqueen was also seen by gastroenterologist Dr Thuy Dinh on 2 January 2009, who performed a gastroscopy and colonoscopy, which showed

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[4] Statement of Dr Oi Chan, above n 1, 7; Statement of A/Prof Colin Russell, dated 19 August 2010, Coronial brief 32.

[5] Statement of A/Prof Colin Russell, dated 19 August 2010, Coronial brief 32.

[6] Statement of Dr Yihua Xie, dated 19 May 2013.

severe gastroparesis. A gastrografin was performed on 8 January 2009 showing that the contrast flow was slow, consistent with denervation of the stomach, as was to be expected given the nature of surgery performed.[7] Three upper GI endoscopies were also performed on 6, 9 and 13 January 2009 to determine whether there was any mechanical obstruction at the anastomosis and to insert a feeding tube into the small bowel. The views of the stomach were severely limited because of residual undigested food. Consequently, the site at the antrectomy was not visualised.[8]

6. Mrs Mulqueen's diarrhoea eventually settled and although her weight gain was minimal the TPN was ceased on 16 January 2009, nasojejunal ('NJ') feeding was started and she was discharged on 20 January 2009 fully mobile and feeling well, with no diarrhoea and minimal weight gain.[9] On 3 February 2009 Dr Dinh reported that Mrs Mulqueen had been tolerating the NJ tube feeding very well, was feeling a lot better, had been eating small amounts orally and seemed to be keeping it down quite well. Her energy levels had returned and she had been quite active at home and around the gardens. Dr Dinh advised that she continue with NJ tube feeding for the next four weeks and return to see him.[10]

7. On 18 February 2009 and 17 March 2009 HepatoPancreatoBiliary surgeon Mr Peter Evans saw Mrs Mulqueen. On 18 February 2009 she reported that with NJ feeding her weight had stabilised, her general health was improving, she was allowed to have more solid foods over the last two weeks and her diarrhoea had settled so that she was having one or two formed stools per day. Mrs Mulqueen informed Mr Evans that Dr Dinh identified a gastric outlet obstruction that was balloon dilated. Mr Evans reported to Dr Dinh that this information raised the possibility that her gastric symptoms may be 'more due to persistent outflow obstruction rather than a gastroparesis.'[11] Mr Evans was of the view that there may have been a mechanical obstruction at the site of the gastrojejunostomy. He discussed this with Dr Dinh who stated that he felt there was no mechanical obstruction at the gastrojejunostomy and that the best test was a gastroscopy which he had already performed. Dr Evans stated that an aberrant reconstruction after the surgery on 20 August 2008 was

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[7] Statement of Dr Thuy Dinh, dated 29 October 2013, 1.

[8] Ibid.

[9] Statement of Dr Malcolm Scott, dated 12 November 2012, Coronial brief 69; Statement of Dr Peter Shea, dated 6 February 2012, Coronial brief 34.

[10] Statement of Dr Thuy Dinh, dated 3 February 2009, Coronial brief 76.

[11] Statement of Mr Peter Evans, dated 18 February 2009, Coronial brief 79.

definitely a differential diagnosis for her symptoms but that Mrs Mulqueen's symptoms at her second consultation on 17 March 2009 including her diarrhoea settling, maintaining a stable weight and tolerating a reasonable diet made the diagnosis less likely and far more likely to be related to gastroparesis.[12]

8. In mid-June 2009 Mrs Mulqueen's liver function tests deteriorated. She was referred to gastroenterologist Dr Michael Merrett for a second opinion and ongoing management. On 22 July 2009 Mrs Mulqueen saw Dr Merrett and complained of being extremely unwell with fatigue, weakness, abdominal bloating and pain. She was also experiencing diarrhoea with 10 stools daily with urgency and had a history of progressive loss of weight. She reported being 50kg prior to her surgery on 20 August 2008 and had dropped to 35kg in the following seven months.[13] Dr Merrett performed an upper GI endoscopy on 31 July 2009, which revealed a large amount of food debris within the stomach, despite 24 hour fasting, and a narrow gastroenterostomy with associated firm stomal ulcer occupying half the circumference. Attempts were made to place a percutaneous endoscopic jejunostomy ('PEJ') however there was overlying sigmoid colon. Consequently, a percutaneous endoscopic gastrostomy ('PEG') was placed adjacent to the gastroenterostomy.[14] As Mrs Mulqueen required a prolonged in-patient stay with close supervision of a feeding program, particularly to prevent refeeding syndrome, she was transferred to Jessie McPherson Private Hospital on 4 August 2009.

9. Upon admission, Mrs Mulqueen had significant weight loss, protein-calorie malnutrition and profound markers of malabsorption with an Albumin of 12g/L, hypokalemia, hypomagnisemia and low vitamin D. On 5 August 2009 Dr Devonshire underwent a gastroscopy which revealed 'a good sized gastric remnant with food residue of poor gastric emptying and healthy PEG site'. The gastro-enterostomy bypass in the stomach was oedematous but not stenotic, although mildly ulcerated. This appeared benign and was non-malignant on biopsy. The distal small bowel appeared healthy. Enteral nutrition was commenced through the PEG tube to help support Mrs Mulqueen's nutrition and improve her clinical state. As she was fed through the PEG there was discharge and irritation at the

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[12] Statement of Mr Peter Evans, dated 17 March 2009, Coronial brief 80; Statement of Mr Peter Evans, dated 10 September 2012, Coronial brief 77, 78.

[13] Statement of Dr Michael Merrett, dated 17 March 2011, Coronial brief 83.

[14] Upper G.I Endoscopy Report, Coronial brief 152.

tube site for which a CT scan was planned to exclude any other intra-abdominal malignancy or obstruction.[15]

10. By 8 August 2009 Mrs Mulqueen had become quite unwell with profound weakness and was bed bound with crampy pain and a distended abdomen. There were ascites leaking at the PEG site. It was noted her serum Albumin was only 12g/L,[16] which can be caused by several different problems, including poor nutrition or inflammation of sepsis.[17] In the early hours of 9 August 2009 Mrs Mulqueen was noted to have systolic blood pressure of 70, sepsis and abdominal pain, and was consequently transferred to the Intensive Care Unit. Her condition deteriorated rapidly and Dr Devonshire assessed her as being critically unwell with the possibility of progressive malignancy, intestinal failure and severe malnutrition. A CT scan of her abdomen suggested the possibility of free gas and bowel leak. Mrs Mulqueen was assessed by the surgical team, including Mr Graham Starkey. On review she had a distended tense abdomen and was acidotic, anuric and requiring noradrenaline to maintain her blood pressure. The surgical team discussed Mrs Mulqueen's critical condition with her family and proceeded with laparotomy.[18]

11. At laparotomy Mr Starkey found ischaemic[19] bowel from proximal jejunum to rectum, a previous distal gastrectomy, a distended gastric remnant anastomosed to distal ileum with the ileal limb anti-peristaltic, and ileo-ileostomy with only a short segment of bowel between the stomach and caecum and the remaining small bowel bypassed. Mr Starkey noted in his hospital progress notes that the reconstruction seemed to have been incorrectly performed.[20] He spent some time in theatre examining the anatomy due to its unusual nature, including unscrubbing midway through the procedure to speak with a senior colleague, Mr Stephen Blamey, due to the significance of what he had found and arranging for photos to be taken. He determined that there was no chance of survival. Mrs Mulqueen's abdomen was closed, she was returned to ICU for palliation and passed away at 2.45pm that afternoon.

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[15] Statement of Dr David Devonshire, dated 6 December 2012, Coronial brief 85.

[16] Normal 35-45g/L.

[17] Inquest brief 114.

[18] Statement of Dr David Devonshire, above n 11; Statement of Mr Graham Starkey, dated 18 September 2010, Coronial brief 111; Medical Practitioner's Deposition, Coroners Case Number 3886, dated 9 August 2009.

[19] At inquest Mr Starkey amended his statement so that the term 'necrotic bowel' was amended to 'ischaemic bowel'; Inquest transcript, 31.

[20] Southern Health inpatient care progress notes of Mr Graham Starkey , Coronial brief 109.

12. Due to his findings Mr Starkey referred this matter to the Coroners Court of Victoria.[21]

POST-MORTEM EXAMINATION

13. A post-mortem examination and report was conducted by Dr Michael Burke, Senior Forensic Pathologist at the Victorian Institute of Forensic Medicine. Dr Burke reported that at post-mortem examination the bowel did not have as florid an appearance as suggested by the medical records, however there certainly was microscopic evidence of ischaemic change within the submucosa and muscle coat of the bowel. There was no evidence of frank gangrene or peritonitis. He further reported that the surgical anastomoses appeared intact but that the issue of 'anti-peristaltic' position of ileo-gastric anastomosis was beyond his field of expertise.

14. Dr Burke determined that the cause of death is 1(a) small bowel ischaemia; and (2) distal gastrectomy.

PURPOSE OF THE CORONIAL INVESTIGATION

15. The primary purpose of the coronial investigation of a reportable death[22] is to ascertain, if possible, the identity of the deceased person, the cause of death (interpreted as the medical cause of death) and the circumstances in which the death occurred.[23] An investigation is conducted pursuant to the *Coroners Act 2008* (Vic)[24] and the outcome of this part of my investigation is included in this finding.

16. Coroners are also empowered to report to the Attorney-General on a death they have investigated; the power to comment on any matter connected with the death, including matters relating to public health and safety or the administration of justice; and the power to make recommendations to any Minister, public statutory or entity on any matter connected with the death, including recommendations relating to public health and safety or the administration of justice.[25] This is referred to as the 'prevention role' of the coroner.

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[21] Ibid 110.

[22] Section 4 of the *Coroners Act 2008* (Vic) requires certain deaths to be reported to the coroner for investigation. Apart from a jurisdictional nexus with the State of Victoria, the definition of a reportable death includes all deaths that appear 'to have been unexpected, unnatural or violent or to have resulted, directly or indirectly, from accident or injury. Mrs Mulqueen's death falls within this definition.

[23] *Coroners Act 2008* (Vic) s 67.

[24] Hereafter referred to as 'the Act'.

[25] *Coroners Act 2008* (Vic) ss 72(1), 72(2) and 67(3).

THE EVIDENCE

17. This finding is based on all the investigation material comprising the coronial brief of evidence, all material obtained after the provision of the brief, the statements and evidence of those witnesses who appeared at the inquest and any documents tendered through them, other documents tendered through counsel, as well as written submissions made by counsel.

18. The following witnesses gave evidence at the inquest:

- Dr Thuy Dinh
- Mr Graham Starkey
- Dr Michael Burke
- Dr Matthew Andrews
- A/Prof Ronnie Ptasznik
- A/Prof Wendy Brown
- A/Prof Colin Russell

19. I also received written submissions from Mr James Fitzpatrick of counsel for the Mulqueen family and Mr Ben Ihle of counsel for A/Prof Russell.

20. At the commencement of the inquest, it was evident that most of the facts about Mrs Mulqueen's death are known including her identity, the medical cause of her death and aspects of the circumstances, including the place and time of her death. The primary focus of the inquest into Mrs Mulqueen's death related to circumstances surrounding her death; in particular, whether an inadvertently aberrant surgical reconstruction was performed by A/Prof Colin Russell and/or his assistant, surgical registrar Dr Yihua Xie, during the course of the distal gastrectomy and vagotomy procedures undertaken at Frankston Community Hospital on 20 August 2008. I note that Mr Xie was not an interested party to these proceedings and that the Court has accepted his statement as untested.

21. It is important that I make clear that it is not part of a coroners role to lay or apportion blame. As Calloway JA espoused in *Keown v Kahn* (1999) VR 69:

> In determining whether an act or omission is a cause or merely one of the background circumstances, that is to say a non-causal condition, it will sometimes be necessary to consider whether the act departed from a norm or standard or the omission was a breach of a recognised duty, but that is the only sense in which para. (e) mandates an inquiry into culpability. Adopting

the principal recommendation of the Norris Report, Parliament expressly prohibited any statement that a person is or may be guilty of an offence. The reasons for that prohibition apply, with even greater force, to a finding of moral responsibility or some other form of blame: the proceeding is inquisitorial.[26]

22. Callaway JA observed that it is the coroners role to seek to establish the facts, set them out and for others, if they wish, to draw legal conclusions. The amendment to *Coroners Act 1985* (Vic) repeals the requirement to make a finding as to persons/other entities who "contributed" to the death, due to the connotation that had attached to that concept; a connotation of fault, blame or culpability. I have assiduously sought to follow His Honour's direction.

23. The *Briginshaw*[27] standard of proof is applicable to findings of fact in this Court. As Dixon J espoused:

> The seriousness of an allegation made, the inherent unlikelihood 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 proof, indefinite testimony or indirect inferences.[28]

Evidence at Inquest

24. At inquest gastroenterologist Dr Dinh gave evidence that when he performed the three endoscopies in January 2009 he was aware that a distal gastrectomy had been performed previously, but did not know the reconstructive configuration of the small bowel, nor would he be able to determine the configuration via endoscopy.[29] He stated that his primary purpose was to look for a gastric outlet obstruction into the small intestine, but that it was difficult to visualise clearly due to the large amount of undigested food remaining in the stomach. Dr Dinh stated that the food remains may have been due to an obstruction or due to denervation of the stomach muscles as a result of the vagotomy performed on Mrs

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[26] *Keown v Kahn* (1999) VR 69, 76.

[27] *Briginshaw v Briginshaw* [1938] 60 CLR 33.

[28] *Briginshaw v Briginshaw* [1938] 60 CLR 33 [362]-[363].

[29] Inquest transcript, 6-7.

Mulqueen.[30] Dr Dinh stated that on 3 March 2009 he removed the nasojejunal tube because Mrs Mulqueen was gaining weight, was able to eat normally and was quite happy to have the tube removed.[31] She was not using it at the time, was eating and tolerating her diet, her energy levels had returned and she had been quite active at home and around the gardens, indicating that while she was receiving nutrition via a nasojejunal tube as at 3 February 2009 it is likely that her bowel was uptaking nutrients.[32]

25. During cross-examination by Mr Fitzpatrick, Dr Dinh stated that while performing the endoscopy the small bowel was not completely blocked, because he was able to enter into it.[33] He further stated that, assuming Mr Starkey's diagram of what he saw during the laparotomy performed on 9 August 2009 is correct,[34] such a structure, with a length of 20cm into the anastomosis, is in his view too short to see the major clinical improvement from the time the nasojejunal tube was inserted to two months later when Mrs Mulqueen saw him, because if it was that short the contents of the feeding fluid would not be absorbed a lot, or at all.[35] He agreed that if what Mr Starkey found is correct that it would be an unusual occurrence and that it would be fair to say that he would have been surprised that Mrs Mulqueen would have done as well as she did. Dr Dinh stated that he had not come across many cases of this type of surgery at the time that he saw her in 2009 and that he would not have ever seen a patient that he could be confident had what Mr Starkey described. He stated that there is a critical length in which a patient would need lifelong nutrition from other forms rather than orally, but that it depended on many factors and varied from person to person,[36] but that the critical length for absorption is 'usually about 60 to about 80cm or so',[37] and that patients who have a length of small bowel less than 60 to 80cm run into major issues with malabsorption and requiring intravenous nutritional supplements. In normal circumstances, with those patients he would not expect to see the improvements he saw in

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[30] Ibid 7-8.

[31] Inquest transcript, 9.

[32] Ibid 22.

[33] Inquest transcript, 10.

[34] Southern Health inpatient care progress notes of Mr Graham Starkey, Coronial brief 458.

[35] Inquest transcript, 14.

[36] Ibid 15-17.

[37] Inquest transcript, 19.

Mrs Mulqueen, by way of nasojejunal tube insertion or something similar. [38] He stated that if it was the ileum used for the gastro anastomosis, given the length described it is highly likely there would be consequences for Mrs Mulqueen, such as malnutrition and poor absorption.[39]

26. During cross-examination by Mr Ihle, Mr Dinh stated that Mrs Mulqueen responded quite well to nutrition by the nasojejunal tube and the fact that she received intravenous nutrition while she was in hospital. He explained that gastroparesis is certainly very frequent in people who have undergone a vagotomy, and that in the period between 3 February 2009 and 3 March 2009 Mrs Mulqueen was on upwards trajectory; she was eating and feeling better and her bowel movements were starting to look more consistent with someone receiving nutrients. He stated that in mid-February 2009 the issue was working out whether there was a mechanical obstruction or gastroparesis, and that he thought it was more likely to be gastroparesis than a mechanical obstruction, as by that stage he had performed three endoscopies and saw no mechanical obstruction.[40] He conceded that gastroparesis is not necessarily a static condition and that the natural course of gastroparesis is often periods of problems and wellbeing in between. Dr Dinh stated that he still sees the fundamental problem as gastroparesis that may fluctuate, which is something he would expect to see in patient after they had received a vagotomy.[41]

27. Mr Starkey gave evidence at the inquest. He stated that at the time he performed the laparotomy on Mrs Mulqueen he had been a Hepato-Biliary & General Surgeon for 3 years and had performed laparotomies fairly frequently. He stated that at the time he would not have seen a huge number of distal gastrectomies but had used the Roux-en-Y procedure a lot, as its configuration is quite common in transplantation and liver surgery, and that there is only one standard way to do it.[42] Prior to performing the laparotomy on Mrs Mulqueen he was aware of what the configuration should be like anatomically with the gastrectomy. He was also aware that Mrs Mulqueen's pre-laparotomy weight was approximately 34 kilograms.[43]

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[38] Inquest transcript, 27-8.

[39] Ibid 18.

[40] Inquest transcript, 22-5.

[41] Inquest transcript, 26-8.

[42] Inquest transcript 39.

[43] Inquest transcript 55.

28. Mr Starkey said the purpose of performing a roux-en-Y procedure was to create a distance between the stomach and where the bile is coming down, so that the bile doesn't go up into the stomach and cause bile reflux.[44] In Court, he drew a diagram of a standard Roux-en-Y procedure.[45] He explained that the antrum is effectively removed after the resection of the stomach and that the first part of the duodenum, just past the pyloris, is the other part of the resected specimen. The jejunum is divided a short distance from the DJ flexure, the distal part of the bowel is joined to the stomach and the proximal jejunum is attached to the side of the duodenum.[46] Mr Starkey stated that the length from the gastroenterostomy[47] to the enteroenterostomy[48] varies between surgeons from 20 to 50 centimetres, but that 30 to 40 centimetres would be typical, and that the length of the duodenum which had a blind end typically has 30 centimetres of duodenum and 20 centimetres of proximal jejunum.[49] He stated that a typical adult female would have 'something like three and a half metres' of small intestine and that the remaining length from the enteroenterostomy until the ileocecal junction is approximately 2.1 metres, but that the length of the small bowel is quite variable.[50]

29. Mr Starkey gave evidence that the configuration of the small bowel was unusual, and that a portion of the limb of the small intestine was antiperistaltic.[51] The first thing that struck him was the short distance between the gastroenterostomy, enteroenterostomy and ileocecal junction. The second was that the distal ileum was connected to the side of the ileum so that the bowel was joined on the side and you could see it coming into the side, creating a pronounced intersection, whereas he described that usually in a normal situation the part of the bowel going up to the stomach is in continuity with the ileocecal junction.[52]

30. He conceded that he did not use a tape measure and that his measurements were rough, but that the distance between the enteroenterostomy and ileocecal junction was approximately

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[44] Inquest transcript 42.

[45] Diagram 'A'.

[46] Inquest transcript 41-2.

[47] The surgical creation of an connection between the stomach and the jejunum.

[48] A surgical anastomosis between two parts of the small bowel.

[49] Inquest transcript 43.

[50] Inquest transcript 44.

[51] Reversed peristaltic action of the intestines, by which their contents are carried upward.

[52] Inquest transcript 47.

20 centimetres[53] and that the distance between the gastroenterostomy and enteroenterostomy also measured approximately 20 centimetres. When asked if the length between the gastroenterostomy and enteroenterostomy presented as an issue for him, he replied 'I don't think that was a big issue. But it's the direction, it's not the length'.[54] Mr Starkey conceded that he did not measure the length of the duodenum which had a blind end, but believed that this was the great majority of the small bowel, 'probably two or three metres in length,'[55] and comprised of the duodenum, jejunum and a large part of the ileum,[56] with exception to approximately 20 centimetres of ileum. He stated that it was working in a direction so that bile and pancreatic juices were coming down the long lip of bowel, but not coming into contact with food and that it is only at the point where food can manage to make its way down the antiperistaltic limb that it can mix with the bile and pancreatic juice. He said that the bulk of the small intestine is antiperistaltic but that from the enteroenterostomy it is peristaltic, including the colon.[57] If it is accepted that Mr Starkey's configuration is correct, he would expect three things. First, he would expect it to cause malabsorption; an inability to absorb sufficient nutrients, because of the short length of peristaltic bowel. Second, if undigested food enters the cecum and colon it tends to cause diarrhoea, therefore he would expect that if there was not a long piece of small bowel the patient would get bad diarrhoea that would be difficult to control. Third, the stomach was "effectively working against a loop of bowel in terms of emptying". Consequently, he expected that would make it difficult for the stomach to empty and may enlarge the stomach, however he commented that this can be a problem regardless after a distal gastrectomy.[58] He said that Mrs Mulqueen already had these symptoms prior to the distal gastrectomy and vagotomy on 20 August 2008, but said the reconstruction may have exacerbated those problems. He stated that it was important to note that nobody has really seen cases like this and consequently it is hard for him to give any experience of that.[59]

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[53] Inquest transcript 46.

[54] Inquest transcript 48.

[55] Inquest transcript 48.

[56] Inquest transcript 49.

[57] Inquest transcript 49-50.

[58] Inquest transcript 50, 133.

[59] Inquest transcript 133.

31. In relation to what portions of the small intestine would have been able to properly absorb nutrients, Mr Starkey stated that the 20 centimetres of ileum would be acting normally but that it depends to what degree food would reflux up the limb and mix with bile and pancreatic juices, which he could not determine. The food certainly would not have gone all the way to the blind end/stump, but that peristalsis is not a complete 100% phenomenon, so food could have gone a little way up there.[60] If Mrs Mulqueen had 'just 20 centimetres of gut, full stop' he would find it very surprising that she was able to sustain herself, but he does not think anyone has the experience regarding to what degree the other bowel might have been contributing to some absorption, even though it was 'sort of out of circuit', and she was receiving at least two months of parenteral nutrition, or nutrition into her veins, which was not dependent on the bowel.[61] He agreed that if Dr Dinh's evidence was correct that the food was released, via a nasojejunal tube 5 centimetres beyond the anastomosis, that it would have been placing food in the antiperistaltic portion of the intestine.[62]

32. Mr Starkey conceded that prior to Mrs Mulqueen's case he had never come across an antiperistaltic Roux-en-Y configuration, that he did not think it would be on any doctor's radar post this type of surgery and that it would be fair to say that other explanations are often sought in terms of explaining poor stomach emptying and poor absorption. He explained that a lot of questions were about gastroparesis and a stricture as well as thinking about other diseases, like coeliac disease, and that tests had been done that cast a wide net, because nobody was sure.[63]

33. During the procedure, Mr Starkey recalled spending approximately 20 to 25 minutes looking at the configuration, following the bowel along[64] and dissecting out the adhesions to make sure that he appreciated the anatomy correctly. He was trying to exclude ischaemic bowel and stated that he 'certainly never imagined finding something like this'.[65] Approximately 20 minutes into the operation he initially noticed the gut had ischaemic changes. Consequently he made sure that he very carefully[66] examined the whole gut from the DJ

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[60] Inquest transcript 51.

[61] Inquest transcript 52-3.

[62] Inquest transcript 53-4.

[63] Inquest transcript 56.

[64] Inquest transcript 124.

[65] Inquest transcript 57.

[66] Inquest transcript 125.

flexure down to the terminal ileum and ileocecal junction to make sure there wasn't a significant part of it that was still viable. When doing so he noticed the close proximity of the joins from the previous surgery, which 'rang alarm bells because that was clearly not normal'. He noted that a proximal part of the small intestine had been joined up to the stomach and the distal end became the enteroenteric anastomosis, which meant that the pathway of anything leaving the stomach through the gastric anastomosis will travel a reasonably short distance due to the short length of bowel.[67] This reconstruction would see the stomach drain directly into part of the ileum, then through another anastomosis into another part of the ileum.[68] Mr Starkey informed the court that he was very confident of what he saw.[69]

34. Mr Starkey then traced the bowel up and down a couple of times with the theatre camera. He unscrubbed and spoke to the head of the unit on the telephone, to get a second opinion about his observations regarding Mrs Mulqueen's bowel configuration and clinical situation. He stated that the second opinion was not a question of second-guessing himself and that the potential gravity of the situation for another surgeon was not at all lost on him at any stage.[70] He then rescrubbed, took some photos and closed the abdomen. He estimates that this whole process took approximately one hour.[71] He stated that from a clinical point of view, which was critical, he looked for if there was a segment of bowel that was abnormal and the rest okay, in which case he would have resected that part. However, the changes were global, in that there was no real difference between all of the bowel; it was all ischemic other than a very small part near the DJ flexure. Consequently, no operation he could sensibly do would potentially help Mrs Mulqueen.[72] Prior to the operation, he felt the chances of survival were low and that the operation would probably not change the outcome, but he wanted to demonstrate to the family that they were doing everything they could.[73] Mr Starkey gave evidence that ischaemic gut causes are multifactorial and that he does not know what the

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[67] Inquest transcript 123-4.

[68] Inquest transcript 129.

[69] Inquest transcript 131.

[70] Inquest transcript 63.

[71] Inquest transcript 58.

[72] Inquest transcript 64.

[73] Inquest transcript 139-40.

final cause for her ischaemic gut was,[74] and confirmed that whatever factors caused Mrs Mulqueen's dramatic demise occurred over the last couple of days, rather than weeks or months.[75]

35. Mr Starkey gave evidence about Mrs Mulqueen's condition on the morning of 9 August 2009, based on Jessie McPherson Private Hospital medical notes.[76] He explained that Mrs Mulqueen had quite low systolic blood pressure of 70, decreased albumin, which could be caused by a range of factors including poor nutrition or inflammation of sepsis, raised C reactor for protein (CRP) of 250, a blood marker showing that there is some degree of inflammation, increased heart rate of 125, which is one of the body's responses to severe inflammation, and drowsiness.[77] He stated that now knowing his findings on the laparotomy, and reflecting back on these symptoms, certainly having ischaemic bowel causes a lot of inflammation and sepsis and a high heart rate, although he commented that it would be unusual to have acute inflammation from ischaemic bowel to cause a CRP to be that high as early as that.[78] The medical notes recorded that Mrs Mulqueen was severely malnourished and Mr Starkey gave evidence that this would cause a degree of immuno-compromise which makes it harder for the body to fight infection. He could not say why or what made Mrs Mulqueen so unwell on that night, or why her blood pressure was so low.[79] He did not know what event made her gut ischaemic,[80] and agreed that the autopsy photographs did not show frank necrosis of the bowel, and that the bowel did not have as florid an appearance as suggested by the medical records.[81] He further stated that he is not suggesting that Mrs Mulqueen's death was caused by an aberrant procedure performed a year or so earlier, but rather that she developed ischaemia, or profound sepsis and abdominal pain, which caused him to perform the operation whereby he found the evidence of the previous surgery, but that the cause of her death was, he believes, a gut ischaemia.[82]

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[74] Inquest transcript 66.

[75] Inquest transcript 181.

[76] Coronial brief 445.

[77] Inquest transcript 115.

[78] Inquest transcript 115.

[79] Inquest transcript 117.

[80] Inquest transcript 145.

[81] Inquest transcript 149-50.

[82] Inquest transcript 184.

36. Dr Michael Burke, Senior Forensic Pathologist at the Victorian Institute of Forensic Medicine, gave evidence that he performed an autopsy on the body of Mrs Mulqueen on 14 August 2009. He acknowledged that in his 18 years as a pathologist he does not believe he has seen an improperly performed Roux-en-Y reconstruction at autopsy, but that it is not uncommon for him to see Roux-en-Y reconstructions at autopsy. During the autopsy on the body of Mrs Mulqueen, Mr Burke measured that the length from the gastro-intestinal junction down to an anastomosis was 29 centimetres. He did not measure the length from the blind end to the end of the small intestine.[83]

37. Dr Burke noted that some parts of Mrs Mulqueen's bowel showed changes of ischaemia under the microscope but that, to his eye, it wasn't global ischaemia of the small bowel.[84] The details that informed his view that there was ischaemia to the bowel were really upon histological examination rather than macroscopic; he took a numbers of sections. He stated that the bowel, as he observed it, would be the same or worse than on the day it was operated on by Mr Starkey.[85] He conceded that in his autopsy report he referred to a gastroileal anastomosis,[86] but that 'from the strict anatomy it may well be jejunal'[87] and he would now say 'gastroenteric'.[88]

38. When reviewing photograph one taken by Mr Starkey in surgery[89] Dr Burke stated that he would absolutely take Mr Starkey's word that there is nothing on the fact of that which does not look right; that it looks to be the correct anatomy.[90] He gave evidence that Mrs Mulqueen also had chronic ischaemia changes, and that it is hard to understand regarding someone who had normal blood vessels. He said that it is certainly unusual why Mrs Mulqueen suddenly became acutely unwell and dropped her blood pressure,[91] and agreed that it did not help that she lost a lot of weight, from 50 kilograms to approximately 34 kilograms in 12 months, and was in quite a malnourished state, but does not know whether

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[83] Inquest transcript 72.

[84] Inquest transcript 74.

[85] Inquest transcript 100.

[86] Autopsy report of Dr Michael Burke, Coronial brief 130.

[87] Inquest transcript 78.

[88] Inquest transcript 98.

[89] Exhibit 5; Coronial brief 115.

[90] Inquest transcript 83.

[91] Inquest transcript 88.

that necessarily caused her to drop her blood pressure.[92] He agreed that her malnourishment, weighing 34 kilograms, meant that she would not tolerate surgery as well as if she was fit and well.[93]

39. During cross-examination, Dr Burke commented, when looking at photograph one taken by Mr Starkey in surgery, that 'the bowel looks sick, it looks dilated. It's not frankly gangrenous but it looks unwell'.[94] He could observe three defined anatomical points which he said were unmistakable: the gastro anastomosis, enteroenteric anastomosis and the terminal ileum.[95] He stated that generally, with respect to mapping the DJ flexure it is pretty obvious in routine practice of someone who has died of a heart attack. He agreed that in his autopsy report he noted that something that he originally considered was an anastomosis was actually an adhesion upon dissection, and that this is a complicating factor because adhesions make mapping the small bowel that much more difficult,[96] but gave evidence that the autopsy photographs show that there are not a lot of adhesions.[97]

40. Dr Burke conceded that his gastroesophageal junction measurement in his autopsy report is not of great relevance or assistance, and that he did not measure the area of the bowel as Mr Starkey had done:

> Rather than - if I had have measured, rather, from the oesophagus to the gastroenteric anastomosis – which is a pretty silly thing to do in retrospect – If I had it the other way around this would be resolved very quickly. Unfortunately, I've gone straight to there and I haven't done as Dr Starkey has done. And I've looked at the bowel and I don't think I've appreciated the enteric anastomosis, which I apologise for.[98]

41. Dr Burke gave evidence that as an experienced pathologist, he would have thought it highly unusual for a qualified surgeon such as Mr Starkey, specialising in surgery of that nature, to

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[92] Inquest transcript 90.

[93] Inquest transcript 91.

[94] Inquest transcript 94.

[95] Inquest transcript 94.

[96] Inquest transcript 102.

[97] Inquest transcript 108.

[98] Inquest transcript 95.

be totally mistaken about what he saw in front of him in the operating field, and 'the fact that you take photographs is an important thing'.[99]

42. He said that it is uncommon for pathologists to see surgery notes with comments like that written by Mr Starkey,[100] and that it would be equally, if not more unusual to have a reconstruction by a surgeon with equal if not more experience, that being Mr Russell, in accordance with diagram 'B' rather than 'A'.[101] There was nothing in the autopsy examination, or in the documents by reason of Mr Starkey or his own photographs, which says that the anatomical configuration was the same as that shown in diagram 'B', not diagram 'A'.[102]

43. Dr Burke stated that 40 centimetres of bowel that would be in circuit is not necessarily something he would note, unless he was specifically looking for it, and that when looking from a point of juncture at the bowel to another fixed point, he was certainly aware of the anastomosis at the exit point to the stomach, but was not aware of the anastomosis distal to that and believes that he missed it.[103] He conceded that he may well have accepted Mr Starkey's view of what the internal anatomy was, and inter-relayed that into what he was trying to convey, but that based on the photos and on his own independent examination, he cannot say that that is in fact the case, and cannot say whether it is the configuration as depicted by diagram 'A' or diagram 'B'.[104]

44. Concurrent evidence was given by radiologists A/Prof Ronnie Ptasznik and Dr Matthew Andrews. Both radiologists gave evidence that they have interpreted a large number of gastrografin flowcharts/studies throughout their careers and would have been doing approximately 10 to 15 a day when they were first cutting their teeth in radiology.[105]

45. In relation to the gastrografin flowcharts/studies tendered as evidence,[106] both radiologists agreed on seven points:

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[99] Inquest transcript 97.

[100] Inquest transcript 97.

[101] Inquest transcript 103.

[102] Inquest transcript 103-4.

[103] Inquest transcript 105-6.

[104] Inquest transcript 107.

[105] Inquest transcript 222.

[106] Exhibit 13.

a) The technique is sub-optimal, especially given the clinical indication of malabsorption. They would have done far more images between 90 minutes and 4 hours to assess the state of the mucosal lining. Compression/distension views were not available;

b) They are somewhat critical of the choice of gastrografin rather than barium;

c) The stomach is distended, the gastroenteral anastomosis and jejunal loops fill early[107] in the examination and there is a lack of small bowel gas in the right upper quadrant of the abdomen;

d) There is delayed gastric emptying with food and debris present. There is contrast still present in the stomach at four hours which means that the contents of the stomach had difficulty in emptying;

e) The large bowel is opacified at 90 minutes;

f) At the time the large bowel is opacified large amounts of small bowel are not opacified;

g) The four hour film shows large and small bowel but differentiation between what is small and large bowel in the pelvis is impossible, because they are superimposed one upon the other, and there is still residual contrast within the stomach. No small bowel was seen in the upper abdomen.[108]

46. A/Prof Ptasznik and Dr Andrews held differing views on a number of points, including determining the length of small bowel. Dr Andrews, who said that Mrs Mulqueen should have approximately six to seven metres, or approximately 25 feet of small intestine,[109] gave evidence that interpretation of length of small bowel is difficult, particularly when loops are superimposed and that his degree of confidence of the length of small bowel is difficult to determine because of the lack of images taken.[110] He said that there is probably more than 30% of small bowel and that there could be more, but that he did not think there was much less than that.[111] He gave evidence that there are a range of possibilities as to why there may not be visualisation of the small bowel, and that it was important to note that Mrs Mulqueen's images are not of a normal patient due to her past medical history and

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[107] In the small bowel; Inquest transcript 253.

[108] Inquest transcript 222-7.

[109] Inquest transcript 278.

[110] Inquest transcript 227-8.

[111] Inquest transcript 301.

procedures,[112] and distended stomach.[113] In relation to an explanation for the early filling of the colon, Mr Andrews said that a fistula is one possibility and the other is that there is not much small bowel due to it being either bypassed or removed,[114] and that it has gone through to the colon very quickly.[115] He thought it to be very, very unlikely for a surgeon performing the procedure performed by Mr Starkey to miss six or seven metres of small bowel if he was specifically looking for it.[116]

47. A/Prof Ptasznik did not think that six or seven metres of small bowel opacified in Mrs Mulqueen's study; he believed it was less than half.[117] He agreed that the study is sub-optimal, but 'made allowances for this in his brain' and said that there is far less small bowel opacified than he would expect. He could not say whether it is absent or just non-opacified, but thought the most likely explanation is that it is absent.[118] At no stage could he see any proximal small bowel, gas or mass effect in the upper abdomen and he did not think the stomach was distended enough to displace all of it in the pelvis. He did not think the matted loops of small bowel would obscure seven metres. Due to these factors, he thought the most likely explanation is that the small bowel in question is not there, rather than there being a fistula.[119] He thought it unlikely there was a fistula, but could not exclude it completely. The lack of small bowel gas in the studies and total absence of jejunum opacified at four hours, and in the upper abdomen at all stages of the study, might be because the stomach was so distended that it pushed all the bowel down.[120]

48. A/Prof Ptasznik believed the most likely explanation for the findings is that a large amount of small bowel, which he said could be four to five metres, is absent/not visualised, and that the study demonstrates a loop of jejunum blind ending and probably represents the afferent loop of the Roux-en-Y.[121] The 10.19 film shows 'pretty much all the small bowel that was opacified' and no large bowel, and the 10.28 film has 'unquestionably large bowel present'

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[112] Inquest transcript 243.

[113] Inquest transcript 263.

[114] Inquest transcript 285.

[115] Inquest transcript 246.

[116] Inquest transcript 287.

[117] Inquest transcript 281.

[118] Inquest transcript 227-8; 244.

[119] Inquest transcript 256.

[120] Inquest transcript 229.

[121] Inquest transcript 231.

on the film, meaning the transit from small to large bowel took place in that nine minutes. He stated that if that is all the small bowel then that is a substantial difference from the volume of small bowel he would expect to be present in a normal study film.[122] Even allowing for clumping and displacement following surgery, the amount of small bowel loops, approximately 2 metres, opacified at the beginning of the nine minutes is not seven metres and he did not think there was enough time for the contrast to have passed through the remaining five metres.[123]

49. Looking at films 9:52 and 10:19,[124] he was confident the featureless toothpaste tyre loops is almost certainly ileum, based on the fact that very soon after the large bowel is seen the ileum anastomosis joins with large bowel. Dr Andrews did not have the same degree of confidence on the bases that the images are not as optimal as he would have liked and because he does not believe the loops are as fully opacified as he would like.[125]

50. Dr Andrews was not prepared to say that there is the presence of a blind loop on the images, due to the limited visualisation the images being two dimensional/one projection[126] and the position of the 'blind loop' at the 9:52 and 10:19 images which shows the 'blind loop' to be too far down into the pelvis from where it would be in a normal patient who underwent a Roux-en-Y procedure,[127] because the blind loop is a fixed object that he had never heard of being moved surgically or by pressure from other organs or masses within the abdomen.[128]

51. Upper Gastrointestinal and General Surgeon, A/Prof Wendy Brown, gave evidence at the inquest. She performs Roux-en-Y reconstructions on many occasions and her sub-specialty and post fellowship training was on surgeries involving the stomach and oesophagus.

52. When looking at the photographs tendered as exhibit 5, A/Prof Brown stated that there are limitations in making assessments of the bowel with photographs, and that the colour and sheen are difficult to assess. She gave evidence that for persons in the same position as Mr Starkey it can be difficult to identify the condition of the bowel, particularly if the patient is on inotropes to support their blood pressure, because the drugs can constrict the blood

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[122] Inquest transcript 234-6.

[123] Inquest transcript 265-6.

[124] Inquest transcript 240.

[125] Inquest transcript 242.

[126] Inquest transcript 290.

[127] Inquest transcript 250-1.

[128] Inquest transcript 264.

supply which can compromise the blood flow to the bowel. Consequently, distinguishing the difference between bowel that is not getting enough blood because of drugs administered and bowel that is dying or compromised can be very difficult.[129] After reviewing Mr Starkey's photos she believed there was global compromise to the bowel and probably patchy areas of ischaemia, but did not think the bowel was universally ischaemic. Albeit with limitations around sheen and contracting of the bowel as viable, she gave evidence that a lot of the bowel looked to be viable in the photographs, and that there was no evidence of gangrenous necrotic bowel in the photographs that she had seen, but that the bowel looked 'unhappy' and 'sick'.[130]

53. A/Prof Brown stated that if the visual landmarks in the labelled photographs[131] within Mr Starkey's statement are as he suggests, there is only approximately 20 centimetres to the enteroenterostomy and approximately 20 to 30 centimetres of bowel where the ileum joins the cecum.[132] If she accepted that the evidence of Mr Starkey is accurately described, she said there is a very distended stomach remnant and an aberrant reconstruction where the bowel is. There is ileum going into the stomach and there has been an antiperistaltic limb. The bowel has been divided too low and they have brought the proximal end of bowel up to the stomach and the distal end down to anastomose as an enteroenterostomy.[133] She conceded that there is a problem relying on photographs because she has to rely on Mr Starkey's description as being correct to arrive at a conclusion that his description is correct.[134] She could not determine whether the bowel in photograph 1 was ileum or jejunum and stated that in surgery she typically identifies parts of the bowel relative to landmarks. She thought she could be confident that what is in the person's left hand in photograph 1 is ileum heading down towards the ileocecal valve because she could see the cecum and teniae coli, but otherwise could only say there was an enteroenterostomy and could not confidently say whether it was ileum or jejunum.[135]

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[129] Inquest transcript 365.

[130] Inquest transcript 417.

[131] Inquest brief 115.

[132] Inquest transcript 367-8.

[133] Inquest transcript 368-9.

[134] Inquest transcript 450.

[135] Inquest transcript 370.

54. A/Prof Brown said that during surgery there is potential for confusion as to what is ileum and jejunum when attempting to make a transverse cut. The primary landmark is the duodenal flexure and there is a ligament of Treitz which is also an important landmark. Upon locating these landmarks, she typically runs the jejunum up between 10 and 30 centimetres until she finds a part where she can comfortably divide the bowel, but stated that if people have scar tissue, previous surgery or previous trauma in the abdomen, the bowel can be a bit stuck which can cause confusion. Something that a surgeon thinks could be the ligament of Treitz could be incorrect and they could confuse scar tissue for that. She stated that that wouldn't be difficult to have happened and that in surgery there are metres of bowel, your hands can slip and you think you are at a certain point but somehow have found yourself along the bowel a little further than you thought.[136]

55. When making a transverse cut, she measures out the amount she wants to do and brings that loop up to the part of the stomach where she wants to fashion the join between the jejunum and anastomosis. She checks the blood supply and at all times, keeps it in her hands. She then divides it and puts a marking suture on the proximal end, drops that end, over-sews and fashions the anastomosis. The proximal end is then attached to the enteroenterostomy, which should be 40 to 50 centimetres away from the anastomosis between the stomach and distal end of the bowel. She usually double checks for the ligament of Treitz before dividing, because it is a critical landmark and wants to be 100% sure that she hasn't become distracted, dropped bowel or that her assistant has not inadvertently picked up another bit of bowel. At the conclusion of the procedure she double checks the lengths, the DJ flexure to make sure she hasn't reversed it, and that the anastomosis is water tight.[137] She puts a marking suture on the proximal end because it can be easy to get it around the wrong way, as both ends look the same, but knows of many surgeons that do not have that practice.[138]

56. If the transverse cut was made lower, much closer towards the ileocecal valve on the ileum, A/Prof Brown believed the surgeon would be aware of a bulk of bowel on both sides of the field and would be more aware of the cecum, which is normally well out of field, but may be pulled into play a little more if the transverse cut was much lower.

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[136] Inquest brief 372.

[137] Inquest transcript 372-4.

[138] Inquest transcript 374-5.

57. She said three to three and a half metres was the typical length of small intestine in a female 155 centimetres tall and that six to seven metres seems excessive, that she has never seen anyone with seven metres of small bowel, that she measures small bowel quite regularly and that the longest small bowel she has measured was approximately five metres.[139]

58. A/Prof Brown stated the reconstruction as described by Mr Starkey would be more rapidly incompatible with life. The classic teaching is that you need at least a metre of gut to live and that patients with only 20 centimetres of functional gut don't leave hospital and never have periods of time where they are able to be nourished enterally, using either food by mouth or a tube into the bowel.[140] If the reconstruction is as Mr Starkey described there are still metres of viable bowel and there could be some food reflux back in to that bowel that would allow for some absorption of nutrients, because if the food was coming from the stomach and the bowel was antiperistaltic it is hard for the stomach to empty due to the bowel pushing the wrong way. If food did get in presumably there would be some absorption in the bowel that was out of circuit, which differentiates Mrs Mulqueen from short gut patients.[141]

59. The reason she questioned the reconstruction described by Mr Starkey was because someone who had that construction would be dependent on TPN and wouldn't be able to feed themselves enterally. She formed the opinion that there was an aberrant reconstruction and did not think it was a correctly constructed roux limb, but questioned if, in the alternative, the error was just too short a common channel from the enteroenterostomy to the ileocecal valve, where the surgeon inadvertently reconnected the enteroenterostomy too far down stream, which was why Mrs Mulqueen was able to have periods of feeding herself enterally. She accepted that if the construction was as Mr Starkey described that some retrograde flow to the excluded piece of bowel may allow for absorption, which may be why Mrs Mulqueen was not completely dependent on TPN, but found it hard to understand how one could sustain life on essentially 20 centimetres of bowel without constant TPN. She was very confident that at laparotomy she would be able to determine whether it was an aberrant reconstruction or shortened common channel. When asked why, A/Prof Brown stated:

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[139] Inquest transcript 376-8.

[140] Inquest transcript 384.

[141] Inquest transcript 385.

> Because I think if you're actually at the operation you can very confidently say what's a gastrojejunal or ileal anastomosis. You can see the anastomosis at the stomach very easily; you can confirm it's the stomach because there's usually a tube going from the nose down in to the stomach so you can feel that, also the stomach remnant is where its supposed to be. So you can see an anastomosis, then you can follow that bowel and you can find the next join and then you can follow the bowel in both directions.[142]

60. On this basis, A/Prof Brown accepted that Mr Starkey is 'probably correct' as he was there, took photographs and assessed it,[143] however she gave a caveat that this occurred during an emergency operation with a very unwell patient and that sometimes in a hurry ones measurements may not be as accurate, and that a shortened common channel would be very easy to mistake at laparotomy in an emergency situation.[144]

61. With the benefit of knowing and seeing that he had taken photographs and that he had been able to document as carefully as he has, information which she was not provided in her first report, that tended to suggest to her that he had taken the time to undertake those activities and the assessment of the bowel was very careful.[145] She said it does not matter exactly how the bowel was reconfigured; the net result was that it led to Mrs Mulqueen becoming very malnourished which she believed ultimately contributed to her demise. There was something wrong that nobody was able to pick up over a year prior to Mrs Mulqueen's demise and that by the time Mr Starkey was operating there was very little he could do to reverse the situation.[146] She did not think that Mrs Mulqueen's weight is a good measure of how well she was nourished over the year, and that it was a poor measure of nutrition.[147] She said that a fistula was unlikely.[148]

62. A/Prof Brown said that she would expect a surgeon such as herself or Mr Starkey to have very little difficulty locating the gastric anastomosis and that it is quite possible that if Mrs Mulqueen had a distended stomach that photograph one depicts a gastric anastomosis, and that it is not in the wrong place. She said that Mr Starkey's evidence of following or

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[142] Inquest transcript 389-90.

[143] Inquest transcript 386-8.

[144] Inquest transcript 388, 403.

[145] Inquest transcript 434-5.

[146] Inquest transcript 410.

[147] Inquest transcript 414.

[148] Inquest transcript 451.

'walking' the small bowel until he finds the next anastomosis are fundamentally basic skills for a surgeon of some experience.[149] The enteroenterostomy can be more difficult to identify, but from the pictures Mr Starkey provided it is clear that he did identify the enteroenterostomy and ileocecal valve, and on that basis she accepts there is an aberrant reconstruction.[150] Although she could not see the gastroenterostomy in the photographs, as it is the anastomosis that Mr Starkey would have been readily able to identify at the time of surgery, she said that she has to trust that his labelling is correct.[151] In relation to Mr Starkey's decision to close the abdomen and send Mrs Mulqueen to ICU for palliation, A/Prof Brown said that she was of the view that Mr Starkey's decision was appropriate.[152]

63. A/Prof Brown could see metres of small bowel in the 1:04 gastrografin film and stated that a healthy Mrs Mulqueen would have three to three and a half metres of small bowel and that allowing for parts of the bowel being out of circuit due to the construction of a blind limb on an appropriate roux, the metres of small bowel that she observed on the film is not inconsistent with that.[153] She would expect there to be some peristalsis of the stomach four or five months post distal gastrectomy and would consider it abnormal if there was not.[154]

64. With the reconstruction as Mr Starkey described, A/Prof Brown would not have expected Mrs Mulqueen to be tolerating the NJ tube feedings, feeling a lot better and keeping small amounts of food, eaten orally, down quite well in February 2009, as described in Dr Dinh's letter to Dr Shea.[155] She would only allow for improvement whilst the NJ tube was being used for nutrition, but would expect improvement when stopping the NJ tube and eating orally if the aberrant reconstruction was a shorter common channel.[156] She believes there was an element of malabsorption as well as reduced intake from the poor gastric emptying and that Mrs Mulqueen was definitely eating less than she would have because of that. She conceded that pre-August 2008 Mrs Mulqueen was malnourished and that in a very short period of time she had experienced a rapid decline in weight, and that a 30 year history of

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[149] Inquest transcript 397-9.

[150] Inquest transcript 432.

[151] Inquest transcript 435.

[152] Inquest transcript 418, 420.

[153] Inquest transcript 459.

[154] Inquest transcript 455-6.

[155] Exhibit 2.

[156] Inquest transcript 435-6.

issues to do with vomiting and nausea would contribute to malnutrition.[157] She agreed with the comment made by Mr Evans in his report dated 10 September 2012[158] that 'there remains some contradictory evidence in relation to the initial operation report and Dr Starkey's subsequent findings, however the whole clinical course and subsequent malnutrition would suggest that there may well have been an aberrant reconstruction at the first operation highly likely'.[159]

65. A/Prof Colin Russell was the final witness to give evidence at inquest. At the time of the operation on Mrs Mulqueen on 20 August 2008, he was a General Surgeon at Peninsula Health, a position held since 1992. He has since retired, in 2010. He had performed approximately 50 Roux-en-Y reconstructions, 20 to 30 of which were the same gastric procedure as that performed on Mrs Mulqueen.[160] He performed the gastric procedure due to there being no gastric outlet from the stomach into the duodenum, which was confirmed during an endoscopy he performed.[161]

66. His recollection of the gastric procedure on Mrs Mulqueen was fairly general. He did not have a specific recollection of the actual operation,[162] and used his operation notes to confirm that he used his usual technique when performing the operation. Even if he remembered the surgery he would go to the notes, as he considered it to be entirely appropriate.[163] His evidence was drawn from his memory and working memory of what these types of surgeries involve, including his experience and reference to the specific medical notes, documents and diagrams.[164] He was the lead surgeon and Dr Yihua Xie assisted him by holding tissues of the way, retracting organs and performing checks and balances. A/Prof Russell believed that he would have done the sutures because he was listed as the surgeon in the operation report, but cannot remember. He performed the mobilisation of the bowel and gastrojejunal anastomosis, but may have supervised Dr Xie with the other

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[157] Inquest transcript 460-1.

[158] Inquest brief 78.

[159] Inquest transcript 461.

[160] Inquest transcript 468-9.

[161] Inquest transcript 503.

[162] Inquest transcript 473, 523.

[163] Inquest transcript 522.

[164] Inquest transcript 523.

anastomosis, although does not have a firm recollection.[165] He was 'pretty certain' he did the raising of the vascular pedicle and transection between the distal and proximal small bowel and had a very strong recollection that he did the majority of the operation, but conceded that it is possible that Dr Xie did the enteroanastomosis at the end.[166] He said that it could have been the first time he and Dr Xie worked together. He and Dr Xie would have performed approximately 500 or 600 operations, not all big necessarily, over the two years during the time they operated on Mrs Mulqueen.[167] He could not remember specifically if checks and balances did occur during the operation, but said he established a technique with various checks and balances in it, and has no reason to believe it was different to that.[168] His initial focus was the structure at the gastric outlet. Prior to the operation he was aware that there was an obstruction and there did not seem to be any lumen continuing into the duodenum. He conceded that the Roux-en-Y operation was not as common as it was in the 70s and 80s and that he may not have performed Roux-en-Y procedures commonly since the early to mid 90s.[169]

67. During the procedure he could feel fibrosis, build-up of scar tissue and narrowing, compatible with vomiting and problems with gastric emptying. He determined that the most likely cause of the fibrosis was due to the ulceration and he had no reason to suspect anything else. Her small bowel on external inspection looked normal. If there was significant or severe disease in the small bowel it would have been visible with usually some external manifestation. The surgery was an orthodox treatment for Mrs Mulqueen's diagnosis and all things going well, it should have, in time, led to a resolution of the signs and symptoms of that diagnosis.[170] On a continuum of least to most complex procedure, Mrs Mulqueen was at the lower end because there weren't adhesions and there was not a lot of fat.[171]

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[165] Inquest transcript 516.

[166] Inquest transcript 564.

[167] Inquest transcript 518-9.

[168] Inquest transcript 472.

[169] Inquest transcript 472-3.

[170] Inquest transcript 534-5, 538.

[171] Inquest transcript 574.

68. A/Prof Russell drew two diagrams explaining his normal practice when performing a Roux-en-Y gastrectomy.[172] First he has a general look to check for anything unexpected, which he notes in the operation report. There is no record of any abnormality in Mrs Mulqueen's operation report. He then checks the small bowel is clear and normal, and assesses the blood supply to the small bowel, making sure the vascular arcade looks adequate. He then divides the stomach and duodenum, and removes this portion of stomach, ties all the blood vessels so there is no bleeding, and oversews both the duodenal stump and stomach with sutures so they do not leak.[173] He then looks for the DJ flexure, because it is the end of the duodenum and the fixed landmark for the start of the jejunum. He finds a suitable part of the jejunum and picks a spot which provides mobility and has blood supply, transects the jejunum and takes the distal part of the transected jejunum to the new gastric outlet. The appropriate spot to make the transection is based on the bowel's mobility and being relatively close, usually approximately one to two feet maximum from the DJ flexure, where it is under no tension.[174] The distal and proximal end are distinguishable due to the mesentry being divided to create a mobile piece of bowel, resulting in the distal end still having veins and arteries, and normal vessel all the way up to the end, creating a vascular pedicle, and the proximal end only having a narrow strip of mesentry, which make them look quite different.[175] The proximal end of the transected jejunum is then joined as an antacidum anastomosis, creating a T-junction,[176] at least 12 to 18 inches below the anastomosis to prevent reflux, which effectively completes the Roux-en-Y reconstruction.[177]

69. A/Prof Russell can identify the proximal and distal parts of the transected bowel as they look quite different, due to the vascular pedicle, which is fashioned like a tongue and up to one foot long and three inches wide.[178] He uses the vascular pedicle as a check and also reaffirms the parts by finding the DJ flexure.[179] He completes two spot checks of the DJ flexure, the first to ascertain that there was no small bowel problem and the second upon

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[172] Exhibits 26 and 27.

[173] Inquest transcript 474-7.

[174] Inquest transcript 478-482, 495.

[175] Inquest transcript 484.

[176] Inquest transcript 483.

[177] Inquest transcript 482, 486.

[178] Inquest transcript 524-5. .

[179] Inquest transcript 526.

completion of the antrectomy.[180] He would always make these checks himself but may have watched Dr Xie check during the procedure for Mrs Mulqueen, rather than physically running through it himself.[181]

70. Although in previous surgeries he has marked the distal portion of the transected bowel, due to bleeding issues he has not used it as a conventional way of identification. Instead, he refers back to the DJ flexure, which he described as 'sort of tortuous', but the other method.[182] He stated that in a slim patient you can see the DJ flexure, but that he also runs his hand along the bowel to identify it. Then, as a form of checks and balances, he always goes back and checks where all the anastomoses are, in collaboration with his assistant. He described it as a procedure that has to be done carefully which requires him to take note of the steps and do them in order.

71. He relied on Dr Xie to know what to do, sometimes clamp off blood vessels, make the operation as easy as possible and make sure the field was available for him to see.[183] He described Mr Xie as competent and trusted him.[184] If he had been doing a wrong anastomosis he is pretty sure that Dr Xie would have 'had a go' at him about it. There were no time pressures while he was operating on Mrs Mulqueen and the procedure was not in any way rushed.[185]

72. A/Prof Russell does not lose sight of the DJ flexure either during or after the procedure and unless the DJ flexure is consciously unfixed surgically, there are not situations where it becomes unfixed.[186] He agreed with A/Prof Brown that there is not really a demarcation point to identify the transition from jejunum to ileum. There are some changes in arterial arcades but it is variable. He stated that there is a range of lengths of small intestine but agreed with A/Prof Brown that three to three and a half metres is compatible in a small person such as Mrs Mulqueen, and that five or six metres would be the average length for a person such as himself.[187] He accepted that without reference to landmarks and anatomical

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[180] Inquest transcript 485.

[181] Inquest transcript 528.

[182] Inquest transcript 485.

[183] Inquest transcript 487-9.

[184] Inquest transcript 516.

[185] Inquest transcript 487-9.

[186] Inquest transcript 491, 493.

[187] Inquest transcript 493-4.

positioning it is difficult to tell ileum and jejunum apart, but that it was not critical for the purpose of his operation on Mrs Mulqueen because he was aiming to do the operation in the upper part of the small bowel.[188]

73. In relation to whether he could have become confused and made a transection very close to the ileocecal valve, as described by Mr Starkey, A/Prof Russell said he would find it very hard to believe he could do that, especially with the presence of a knowledgeable assistant and using his technique of always referring back to the DJ flexure.[189] In relation to whether it was possible to get confused and bring the wrong end up to the gastric outlet, he said that it is always possible to make a mistake, which is why he has checks and balances and why the DJ flexure is the reference point. Before he does anything with the ends, he checks back on each bit of bowel to see where it goes and what its origin is, when he checked at the end of Mrs Mulqueen's operation it would have been visible. It would be relatively simple to correct and would just require taking down that anastomosis and redoing it in the proper place.[190] Referring to the documentation and operation report, A/Prof Russell stated that adhesions were not a feature of Mrs Mulqueen's procedure, as they would be mentioned if they were significant. Further, no fistulas were mentioned in the operation notes and he did not recall a fistula.[191]

74. Upon reviewing photograph one taken by Mr Starkey in surgery[192] and the labelled photograph of the same in his statement,[193]A/Prof Russell could not really see an anastomosis in the photograph. He could see loops of bowel but could not see the stomach to his satisfaction. He could not see if there was definitely an anastomosis in the photograph, and could not really recognise ileum from jejunum. He also could not be certain that he could identify the ileocecal valve in the photograph.[194] He agreed that there are not metres of small bowel in the photograph, but stated that it could be a metre because it is doubled back on itself at two points. He could not determine if the fold of fat between the two fingers pinching a portion of tissue in the photograph was ileum and stated that it can be quite

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[188] Inquest transcript 495.

[189] Inquest transcript 495-6.

[190] Inquest transcript 497.

[191] Inquest transcript 498.

[192] Exhibit 5.

[193] Inquest brief 115.

[194] Inquest transcript 499-1.

difficult to distinguish what is ileum and jejunum, that it will vary in people who have had operations and are suffering malnutrition and that you would have to go by the position of the small bowel. If it's right beside the cecum it's obviously going to be ileum. If it's up near the DJ flexure it is going to be jejunum and somewhere in between there will be a change.[195] There was nothing inconsistent in the operation report of Dr Xie with the way A/Prof Russell would generally perform the procedure.[196]

75. A/Prof Russell supervised and made the decisions regarding Mrs Mulqueen's post-operative management. He stated that being on TPN until 31 August 2008 was not typical, and that not every patient would be on TPN, but that she had commenced it prior to surgery because she had lost so much weight and had been unable to eat and drink for some time. The TPN was continued after surgery to take her over the period before she could start to eat again.[197] During the 25 September 2008 review Mrs Mulqueen had a complaint of left lower quadrant pain which he focused on. He also recalled her having diarrhoea, as reported by Dr Xie when he reviewed her in November 2008. Up to approximately three months after the reconstruction diarrhoea, especially initially, is not uncommon, as sometimes the gastrojejunal anastomosis takes time to function. He stated that usually it would keep the patient in hospital, so it wasn't a major problem for Mrs Mulqueen.[198] He would also expect reasonably consistent diarrhoea if the reconstruction was as A/Prof Brown suggested, with a short common channel, but felt that diarrhoea might not be the predominant symptom with Mr Starkey's version of reconstruction; rather, nausea, loss of appetite and vomiting due to the antiperistaltic limb.[199] The magnitude of the diarrhoea was not described at either follow-up with Dr Xie.

76. Other than if there were adhesions, which would require the surgeon to look at every bit of bowel, where it goes, what joins with it and where it comes from, A/Prof Russell stated that he would hope that a surgeon would be able to map out the reconstruction and accurately describe it. He agreed with A/Prof Brown that he did not think Mrs Mulqueen would have left hospital if Mr Starkey's version had occurred. He had given some thought to A/Prof Brown's alternative reconstruction and conceded that we have to accept that we can make

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[195] Inquest transcript 502, 509-10.

[196] Inquest transcript 505.

[197] Inquest transcript 506.

[198] Inquest transcript 507.

[199] Inquest transcript 576.

mistakes. However, going over his notes and recollection of what he normally did, he could not see how he would have brought the anastomosis in so low.[200] He finds it hard to believe that the anatomy would have allowed Mrs Mulqueen to go home at all, due to intractable vomiting, but agreed that if there was a short common channel that it could cause more severe diarrhoea than one would expect after the vagotomy.[201] His reasons for believing that Mrs Mulqueen would have had intractable vomiting is because although something would go up the antiperistaltic limb, it does not go up very far because it is continuously being pushed down.[202]

77. He agreed that by 4 August 2009, Mrs Mulqueen was severely malnourished and that post-operatively from August 2008 she suffered bad problems with diarrhoea, as part of malabsorption, and that poorly digested food was entering the cecum which could cause diarrhoea. He agreed that if the reconstruction was as Mr Starkey suggested that he would expect that there would be an antiperistaltic effect from the blind limb.[203] He said there is no reason why nutrients shouldn't be absorbed if material from the stomach is going into the blind limb, as Mr Starkey described, because it is not completely a blind end and there are other secretions coming down.[204]

78. In relation to the diagram drawn by Dr Xie in the operation report,[205] A/Prof Russell stated that it is a diagrammatic representation and that the 'upside-down V' formation refers to the fact that a T-junction was made there. He disagreed that it is a representation of a transection with stitching, but conceded the diagram is confusing and clumsily drawn. The right side of the inverted 'V' is not a representation of stitching and could be looking at the portion which is a the blind end coming down and being sutured onto the main limb which goes down to the ileocecal junction.[206]

79. A/Prof Russell felt that there were no problems during the operation and was happy at the end of it. There was nothing unusual that occurred during surgery to make it more memorable than any other surgery he had conducted. Post-operatively, Mrs Mulqueen was

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[200] Inquest transcript 509.

[201] Inquest transcript 549.

[202] Inquest transcript 555.

[203] Inquest transcript 542.

[204] Inquest transcript 553.

[205] Coronial brief 33.

[206] Inquest transcript 512-4.

attending with a number symptoms. Although it did not cross his mind that the surgery was wrong, he felt that the side-effects of the surgery were worse than he had seen before. He did not relate that back to the possibility of aberrant surgery at the time, due to her having a pre-operative history of 30 years with a lot of problems, including a long history of intermittent duodenal/peptic ulcer,[207] and because although he hoped the symptoms improve by three months it could go longer. He gave her medication to control her diarrhoea and referred her to a dietician to see if this could improve things. At no stage did he consider that there might have been a mistake in the way the surgery was performed, and expected that eventually she would get better.[208] The only explanation he could offer for Mrs Mulqueen's post-operative progress was the effect, or response, of the vagotomy.[209] He said that if there was incontrovertible evidence that he made an error during surgery, he would have to accept it and would have no difficulty doing so.[210]

80. He stated that gastroparesis is a symptom that may manifest as a result of post-vagotomy complications. There is denervation. The pyloris and gastric antrum is removed, which creates a spectrum of loss and change in motility in relation to two major functions, mixing and sorting of the food. This can cause symptoms including weight loss/not being able to maintain weight, frequent and fluid diarrhoea and bloating.[211]

81. In relation to the seven matters A/Prof Brown identifies to reach her conclusion that there is an aberrant reconstruction, if Mrs Mulqueen had a significant response to the vagotomy diarrhoea could certainly be the result of a vagotomy and partial gastrectomy, and also indicative of A/Prof Brown's alternative version of reconstruction. Hypoalbuminaemia is a sign of malabsorption not specific to any one cause. Iron deficiency is a fairly frequent problem after gastrectomy, and anaemia is related to iron deficiency. Profound loss of weight is not expected post-vagotomy but could occur with severe symptoms. The need for TPN to maintain nutrition is a further indication of malabsorption, and the liver function tests are in keeping with people who have malabsorptive procedures. Besides the diarrhoea, which is a symptom, all six are signs of malabsorption, which is unexpected in a post-vagotomy patient. In relation to whether the signs and symptoms are more indicative of an

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[207] Inquest transcript 530-1, 546.

[208] Inquest transcript 520-2, 533.

[209] Inquest transcript 565, 587.

[210] Inquest transcript 574.

[211] Inquest transcript 592.

aberrant reconstruction or post-vagotomy symptomology, A/Prof Russell stated that the symptoms that Mrs Mulqueen developed were obviously beyond what he expected. He thinks both are a possibility and cannot say equivocally 100 per cent that he did not make a mistake in the reconstruction.[212]

82. He agreed that during his operation, the bowel looked normal and in August 2009 it looked abnormal, but stated that his understanding is that they are acute rather than chronic changes, and the question was whether it was the drugs used to treat it that affected it, but the supposition was that maybe there was a leak or something like ischemic bowel, and the appearances were more acute.[213] Her 'dramatic weight loss' over the six weeks leading up to 6 August 2008 appeared to be acute, and progress notes from 6 August 2008 documented that she had 'normal bowel movements', which A/Prof Russell said suggested that diarrhoea was not one of the symptoms at that stage and that it did not seem that she had a presenting history of chronic diarrhoea. He agreed with A/Prof Brown that a vagotomy could cause poor gastric emptying and diarrhoea.[214] He conceded that Mrs Mulqueen's weight loss from 40 kilograms pre-operation, gradually decreasing to never above 35.5 kilograms from April 2009, a pattern of her being unable to gain weight, was certainly the most profound he has seen post vagotomy and gastrectomy. It was his hope and intention that she would have been gaining weight by July 2009, as he expected and achieved in almost every case where he had done similar surgery, and he said that this is an abnormal case.[215] He said that the subjective evidence of Drs Ding and Evans seems to suggest that if there is some improvement from the insertion of a nasojejunal tube, that a problem has somehow been bypassed, but noted that there are no weight measurements to substantiate this.[216] He agreed that on 25 September 2008 Dr Xie did have a real concern about ongoing symptoms and raised his concern as to what the cause of the problems may be, in which he indicated that it could possibly be a normal process from surgery. When questioned whether it is not rather strange that there doesn't appear to be an arrangement for continued outpatient surgical review, A/Prof Russell said that he would have been surprised if further outpatient appointments hadn't been made, but that Mrs Mulqueen did not attend and may have chosen

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[212] Inquest transcript 593-596.

[213] Inquest transcript 538.

[214] Inquest transcript 547-8.

[215] Inquest transcript 556-60.

[216] Inquest transcript 577-8.

to go elsewhere. She attended with Dr Xie on 20 November 2008 for surgical follow-up, a dietician on 24 November 2008 and was scheduled to appear on 8 December 2008 but did not attend.[217]

83. A/Prof Russell stated that if he was in the same position as Mr Starkey and observed what he thought was an aberrant or unusual surgery, there is nothing technically difficult for him to check and re-check it, apart from the presence of adhesions which can come from operations. He agreed that as Mr Starkey is a qualified surgeon, he presumes there is no reason why he would not able to locate the anastomoses, and that interpreting the T-intersection would be bread and butter material for a surgeon, if done properly.[218]

84. A/Prof Russell was aware that Dr Xie was involved in over 100 gastrectomy procedures and personally performed more than 50 gastrectomies and reconstructions in China prior to coming to Australia, which was fairly wide experience compared to another registrar that might be assisting him. For somebody with Dr Xie's experience, the complexity of his role as a surgical assistant was below his education level and was something that A/Prof Russell was comfortable he could do as well as, if not better than, any surgical registrar.[219] He agreed with Dr Xie's statements that had he noticed anything Dr Xie would have told him during the operation, and that is consistent with what he knows of Dr Xie and his working relationship with him. He also agreed with Dr Xie's statement that he would have noticed excess redundant small bowel or excessive loops of small bowel if the reconstruction was performed with a short common channel.[220] If he was fixing an anastomosis within 20 cm of the ileocecal valve, there would be movement of the valve when the bowel is lifted for the purpose of the anastomosis and it would be obvious to the surgeon and anyone else watching, and it should be obvious to the surgical assistant.[221]

85. Prior to this occasion, A/Prof Russell has never received a complaint and had only been in the Coroners Court on one other occasion, which resulted in a finding that was not adverse to his interests. He could not give the most likely cause or contributor to Mrs Mulqueen's death. He does not think Mr Starkey's version is compatible, opined that A/Prof Brown's is

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[217] Inquest transcript 570-1, 580.

[218] Inquest transcript 565-567.

[219] Inquest transcript 573.

[220] Inquest transcript 582-3.

[221] Inquest transcript 584.

more understandable given the circumstances, does not think there is really any evidence that Mrs Mulqueen had a fistula, and his hypothesis is that it was the effect of the gastrectomy and vagotomy. He placed the likelihood of a fistula causing or contributing to the death possibly lower than Mr Starkey's reconstruction, but could not come down either way in relation to the effects of the gastrectomy and vagotomy and the alternative reconstruction as suggested by A/Prof Brown. He stated that he thinks he has to consider it as a possibility that both A/Prof Brown's alternative reconstruction and his hypothesis are equal possibilities. In relation to whether he was in a position to say whether either of them takes it over into the realms of more likely than not, he answered "only... based on what I feel occurred at the operation was within my normal practice and also having the expertise of Dr Xie".[222]

86. A/Prof Russell acknowledged that regardless of how the surgery was performed, the outcome for Mrs Mulqueen is not what he, or anyone else, would have wished for. He was very much aware of how Mrs Mulqueen and her family suffered over that time, and only wished the outcome had been very different. He commented that the Victorian Surgical Council needs to stress that surgeons keep checking their anatomical landmarks throughout the operation and at the end.[223]

Written submissions

87. Mr James Fitzpatrick of counsel for the Mulqueen family submitted that the circumstances surrounding Mrs Mulqueen's death included an inadvertently aberrant surgical reconstruction by A/Prof Russell and/or Mr Xie during the performance of Roux-en-Y surgery on 20 August 2008, which played a key role in a chain of events that lead to Mrs Mulqueen's death.[224]

88. Mr Fitzpatrick submitted that the key evidence supporting this conclusion was:

    a) The direct observations and careful investigation by Mr Starkey on 9 August 2009;

    b) The photographic evidence of Mr Starkey;

    c) The opinion of A/Prof Brown that what Mr Starkey said he saw is most likely to reflect what happened (after she saw his photos and during her evidence);

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[222] Inquest transcript 598-600.

[223] Inquest transcript 600-1.

[224] Submissions on behalf of the Mulqueen family, dated 16 July 2014, 1, 18.

d) That the diagnosis in 2008 of gastric outlet obstruction was straightforward. The surgical treatment, if correctly performed should have allowed an alleviation of Mrs Mulqueen's symptoms, but it did not. No other known medical problem can explain her failure to recover and put on weight apart from the prospect of aberrant surgery;

e) That a small intestine that they submit was subject to the aberrant surgery is so closely connected to the area found to be showing signs of ischemia at laparotomy that it is wholly unlikely to be pure coincidence;

f) The fact that misconstructions of Roux-en-Y whilst rare, occur and are reported in the scientific literature;

g) The radiological opinion evidence of Prof Ptasznik that a large amount of small bowel was not opacified on the gastrografin studies; and

h) The opinions of A/Prof Brown, Mr Starkey and Mr Peter Evans that the post-surgical course of severe malnourishment, diarrhoea and trouble with gastric emptying and stomach distension are consistent with some of form of aberrant reconstruction.[225]

89. Mr Ben Ihle of counsel for A/Prof Russell made the following submissions:[226]

a) The reconfiguration as contemplated by the Roux-en-Y and distal gastrectomy is as described by A/Prof Russell and Mr Xie, and that evidence tending toward any contrary view is not supported by the objective clinical evidence, nor is it of such a quality so as to satisfy the *Briginshaw*[227] standard;

b) The allegations regarding an aberrant reconstruction are grave, and the evidence must stand up to the most careful and rigorous scrutiny before it can be accepted as proof of such allegations;

c) The Court has not benefited from a complete longitudinal examination of Mrs Mulqueen's medical notes, and results of other clinical examinations which were performed prior to her surgery in August 2008, and only in light of such a complete examination could the Court be fully satisfied as to the precise reconstruction of her anatomy;

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[225] Submissions on behalf of the Mulqueen family, dated 16 July 2014, 2-3.

[226] Submissions on behalf of A/Prof Russell, dated 16 July 2014, 1-14.

[227] *Briginshaw v Briginshaw* [1938] 60 CLR 33.

d) The combined professional experience of A/Prof Russel and Mr Xie must be compared to that of other witnesses;

e) The evidence is not of a sufficient nature to permit the finding that A/Prof Russell's operation was performed incorrectly. The vast majority of available evidence, including the objective clinical evidence suggests it was performed correctly. This is suggestive that Mrs Mulqueen's ultimate demise was brought about by some other undiagnosed and unrecognised pathology, or idiosyncratic post-vagotomy symptoms;

f) It is impossible to reconcile the observations and opinions of A/Prof Brown, Dr Ptasznik and Dr Andrews in relation to the length of small bowel 'in circuit' in the gastrografin study, with Mr Starkey's hypothesis of it being 40 centimetres in length;

g) It is impossible to reconcile the observations and opinions of A/Prof Brown, Dr Ptasznik and Dr Andrews with Mr Starkey's hypothesis in relation to the section of bowel immediately distal to the site of gastric anastomosis being jejunal rather than ileum;

h) The absence of any anti-peristaltic movement being noted by the radiologist who performed the gastrografin tends against establishing an aberrant reconstruction;

i) There is no way to test Mr Starkey's theory. The photos he took are inadequate, in the absence of his narrating what they depict, to assess his interpretation of how Mrs Mulqueen's anatomy was configured. Furthermore, the forensic pathologist was not equipped with sufficient skill or experience to conduct a thorough and accurate examination of Mrs Mulqueen's small intestine.

j) Mr Starkey's refusal to accept that he could, in any significantly material way, be in error is significant in assessing the weight that should attach to his evidence, and the caution with which it ought to be approached. This is especially so when there is an irreconcilable description in his post-operative note and subsequent statement to the Court, which described Mrs Mulqueen's bowel as necrotic;

k) The evidence would not support a finding that the anatomical reconstruction (even if as opined by Mr Starkey) would have caused Mrs Mulqueen's death. At worst, such would be a background factor which was, on all the evidence available reversible and not the cause of her sudden deterioration in August 2009. The cause of her death is, and will remain, relatively unknown.

90. Mr Ihle submitted that the Court consider making a recommendation to the responsible body to consider implementing a process of documenting, by way of photographs or video, and/or independent secondary corroboration, by a relevantly qualified professional, of any alleged observations of evidence of aberrant surgical reconstructions. He also submitted that the Court consider making a comment or recommendation to the Victorian Institute of Forensic Medicine to investigate and implement procedures for the involvement of suitably qualified specialist surgeons in cases involving alleged aberrant performance of surgery.[228]

FINDINGS

91. I have been greatly assisted by written submissions from Mr Fitzpatrick of counsel for the Mulqueen family and Mr Ihle of counsel for A/Prof Russell. Not all submissions are specifically referred to in my Finding, however all submissions have received my careful consideration. Submissions which have a causal or temporal link to circumstances surrounding Mrs Mulqueen's death, notably, whether an inadvertently aberrant surgical reconstruction was performed during the course of the distal gastrectomy and vagotomy procedures undertaken at Frankston Community Hospital on 20 August 2008, were of particular assistance.

Mr Starkey

92. Mr Starkey was an impressive witness whose evidence was compelling. The manner in which he detailed his observations, combined with the diagrams contemporaneously drafted by him in addition to surgical photographs and communication with a senior colleague lead me to believe that it is more likely than not that his observations were carefully made, accurately recorded and reflective of the aberrant reconstruction as detailed by him.

93. A/Prof Brown, Dr Burke and A/Prof Russell acknowledge a surgeon in the position of Mr Starkey was perfectly placed to make the observations; in particular identifying the anastomoses, which A/Prof Brown described as a fundamentally basic skill for a surgeon of some expertise.

94. Mr Starkey had no preconceived consideration of an aberrant reconstruction. He was observing a procedure, performed by a surgeon, not previously known to him. He was alarmed initially by the short length of bowel which led him to undertake a careful,

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[228] Submissions on behalf of the A/Prof Russell, dated 16 July 2014, 15.

deliberate and thorough investigation. He fully understood the gravity of his findings; they were not lost on him.

95. The impressive manner in which he gave evidence was reflective and indeed highlighted his professionalism, and attention to detail. He meticulously drew a contemporaneous diagram of his observations, took surgical photographs and telephoned a senior colleague to convey his findings.

96. A/Prof Brown was equally impressed by Mr Starkey's evidence, confidently identifying the anastomoses by reference to his surgical photographs. She could offer no basis to challenge his findings, albeit she conceded that there is a problem relying on the photographs 'because she has to rely on Mr Starkey's description as being correct to arrive at a conclusion that his description is correct'.[229] She gave evidence that she was very confident that at laparotomy she would be able to determine whether it was an aberrant reconstruction or shortened common channel, and on this basis, A/Prof Brown accepted that Mr Starkey is 'probably correct' as he was there, took photographs and assessed it.[230]

97. It became apparent to Mr Starkey that sadly, Mrs Mulqueen could not be saved and he devoted a significant amount of time to ensure that these observations and measurements were accurate, in particular following the bowel along and dissecting out the adhesions to make sure he appreciated the anatomy correctly.[231]

98. Mr Starkey is a highly qualified and skilled surgeon. When he performed his laparotomy he discovered that 'the distance between the enteroenterostomy and ileocecal junction was approximately 20 centimetres'. Mr Starkey stated that the first thing that struck him was the short distance between the gastroenterostomy, enteroenterostomy and ileocecal junction. The second was that the distal ileum was connected to the side of the ileum so that the bowel was joined on the side and you could see it coming into the side, creating a pronounced intersection, whereas he described that usually in a normal situation the part of the bowel going up to the stomach is in continuity with the ileocecal junction.[232] He described following the bowel along carefully with his hands. He gave the following evidence:

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[229] Inquest transcript 450.

[230] Inquest transcript 386-8.

[231] Inquest transcript 57.

[232] Inquest transcript 47, 124.

> I investigated, so I moved – and that just means holding the bowel between your hands and following it along … carefully and so you can – starting at this end and finding this anatomy, and then starting at the DJ flexure and moving distally. If you start at the DJ flexure you expect to find the roux-en-Y quite close to the DJ flexure. Whereas in this case there were multiple loops of bowel, most of the small bowel, prior to finding the anastomosis.

99. He indicated that he started at the DJ flexure which was easily identifiable and moved down from there.[233] On that same day Mr Starkey drew a picture of Mrs Mulqueen's small intestine[234]. He drew this diagram on the back of his operation report. He also made note in the clinical notes and drew a further similar diagram. Mr Starkey came to the view that the clinical health of Mrs Mulqueen's bowel was irretrievable and he determined that there was no chance of survival. The purpose of the laparotomy was a last effort, to determine if Mrs Mulqueen's medical situation could be salvaged. Unfortunately it could not be.[235] During this process Mr Starkey took the photographs that are exhibited before the Court. He also indicated that he unscrubbed and spoke on the telephone to the Head of the Unit, Mr Blamey.

100. Mr Starkey was very clear that he did not rush anything during the examination and that it was a very careful examination.[236] He is an entirely independent witness and the consequence of what he saw was not lost on him at the time.

Possibility And Impact Of An Aberrant Reconstruction

101. Whilst the focus of the inquest has not been on the intervening medical management over the 12 months prior to Mrs Mulqueen's death, there has been significant commentary on it. In her statement, Mrs Mulqueen's daughter highlighted the courage displayed and suffering endured by her mother in the 12 months prior to her death. Whilst various medical practitioners expressed surprise that Mrs Mulqueen could have survived, if Mr Starkey's observations were correct none could refute the possibility. I accept Mr Starkey's evidence that no one knows the answer, having never previously seen a surgical procedure identified by him.

102. I endorse the following submission of counsel for the family of Mrs Mulqueen:

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[233] Inquest transcript 124.

[234] See coronial brief 426.

[235] Inquest transcript 129.

[236] Inquest transcript 130.

> The point needs to be made that no witness in the case had seen surgery like that which Mr Starkey says he found. It may be that it is surprising to them that when they extrapolated mentally and hypothesized as to how Mrs Mulqueen lived on, if she did, that she didn't succumb earlier.[237]

103. A/Prof Brown acknowledged that Mr Starkey's reference to his photographs demonstrate a very short circuit.[238] Mr Evans acknowledged that the report of A/Prof Brown stated 'The whole clinical course and subsequent malnutrition would suggest that there may well have been an aberrant reconstruction at the first operation highly likely.' A/Prof Brown shared Mr Evans views.

104. I further endorse the following submission of counsel for the family of Mrs Mulqueen:

> Like all witnesses Mr Starkey had never seen an aberrant piece of surgery like he found. Therefore it is very difficult for any witness to estimate how Mrs Mulqueen would have fared nutritionally in that circumstance.[239]

105. When asked however, as to the likely consequences for an individual experiencing that aberrant surgery Mr Starkey said:

> I think the first issue would be malabsorption, so in other words, the inability to absorb sufficient nutrients from ... her diet. And that's because of the short part of the bowel, which is so called in circuit;
>
> The second thing is that if you get food that's poorly digested that enters the caecum and enters the large bowel, that tends to cause diarrhoea, so you would expect diarrhoea that would be difficult to treat.
>
> And the third thing, again we've spoken a bit about this, is that the bowel that's antiperisteltic going up to the stomach would in effect be working against the stomach in terms of its emptying and that would make it more difficult for the stomach to empty, so you would expect the stomach to become enlarged and have, you know, poor gastric ... But I think, as you point out, it's important to say that, you know, no one has really seen cases like this so it's hard for me to...give any experience of that. [240]

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[237] Paragraph 42.

[238] Inquest transcript 450.

[239] Paragraph 20 written submissions of counsel.

[240] Inquest transcript 133.

106. Further, in respect to the effect of the aberrant surgery, the evidence referred to Mrs Mulqueen on 6 August 2009 having a weight of 33 kilos and being approximately 155 to 158 cm tall.[241] Mr Starkey described this as 'certainly quite underweight'. He went on to confirm that he thought there was no doubt that if you are severely malnourished, 'getting a subsequent illness is a significant, you know it's a significant risk for poor healing and ...would hasten demise – sorry – progression? Possibly. As I said before I think malnutrition is associated with a large degree of immune-compromise.[242]

Mr Starkey stated:

> I'm saying she developed ischemia which was the reason – or developed profound sepsis and abdominal pain, and that's what made me do the operation. And I found evidence of the previous surgery, but the cause of her death, was I think a gut ischemia.[243]

107. A/Prof Wendy Brown was a surgical expert called on behalf of the Court to assist the inquest. She gave evidence that in terms of the task for Mr Starkey, of locating the anastomoses visually and then with his hands, that's something that she would expect a surgeon such as herself and/or Mr Starkey to have very little difficulty in doing. [244] I endorse this evidence. The importance of this point is that for the surgical reconstruction to be significantly different from what Mr Starkey says he carefully observed, it would involve him making fundamental errors in his following of the bowel and his visual observations.

108. Mr Starkey was acutely aware, once he discovered the aberrant reconstruction, of the importance of reporting what he found. The gravity of the situation was not lost on him. He used his fundamental surgical skills and experience to conduct a slow, careful and thorough examination following the bowel along and dissecting out the adhesions to make sure that he appreciated the anatomy correctly. Landmarks that he searched for were basic for a surgeon of his experience.

109. Mr Starkey's evidence and method of investigating the small bowel was described in detail from the transcript to A/Prof Brown[245]. A/Prof Brown confirmed that she imagined Mr

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[241] Inquest transcript 183.

[242] Inquest transcript 183.

[243] Inquest transcript 184.

[244] Inquest transcript 397.

[245] Inquest transcript 399.

Starkey would be capable of following the bowel.[246] The recognition of the opportunity for a skilled surgeon such as Mr Starkey to actually do the manual and visual inspection that he went through found A/Prof Brown in agreement that it was an unusual opportunity to visualise this in another person rather than relying on investigations and other surrounding signs and symptoms.[247] A/Prof Brown agreed that it was likely to be a strong indication as to how the anatomy actually was on the day that Mr Starkey saw it. She did however apply the natural caveat that sometimes in an emergency situation "with a very unwell patient we do things in a hurry and the measurements may not be as accurate."[248] She was not suggesting Mr Starkey did this and his evidence appears to be to the contrary."[249]

110. A/Prof Russell was a general surgeon who performed the procedure on Mrs Mulqueen on the 20 August 2008. At that time he was general surgeon at Peninsula Health. In my view A/Prof Russell endeavoured to assist the court however was, not surprisingly in light of the length of intervening time, unable to recall the specific procedure. His evidence was drawn from his memory and working notes. He was the lead surgeon assisted by Dr Xie.[250] It was possibly the first occasion he worked with Dr Xie. Dr Xie assisted him by holding tissues away, retracting organs and performing checks and balances. A/Prof Russell conceded that the Roux-en-Y operation was not as common as it was in the 70s and 80s and that he may not have performed Roux-en-Y procedures commonly since the early to mid 90s.[251] He believed he would have performed the suturing, because he was listed as the surgeon in the operation report, but could not remember. He believed he performed the mobilisation of the bowel and gastrojejunal anastomosis, but may have supervised Dr Xie with the other anastomosis however has no firm recollection.[252]

111. A/Prof Russell was 'pretty certain' he did the raising of the vascular pedicle and transection between the distal and proximal small bowel, and had a very strong recollection he performed the majority of the operation, however conceded the possibility that Dr Xie

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[246] Inquest transcript 401.

[247] Inquest transcript 403.

[248] Inquest transcript 403.

[249] Paragraphs 35-40 written submissions of Counsel.

[250] Dr Xie was subpoenaed to give evidence at inquest. His application to be excused from giving evidence on medical grounds was granted in September 2013. His statement forms part of the coronial brief.

[251] Inquest transcript 472-3.

[252] Inquest transcript 516.

performed the enteroanastomosis at the end.[253] He had the utmost confidence in the ability of Dr Xie, however could not remember specifically if checks and balances occurred during the procedure. He had, however, established a technique with various checks and balances and had no reason to believe it was different to that.[254] Although in previous surgeries he had marked the distal portion of the transacted bowel, due to bleeding issues he has not used it as a conventional way of identification.

112. A/Prof Russell acknowledged that by 4 August 2009 Mrs Mulqueen was severely malnourished and, post gastrectomy and vagotomy, suffered bad problems with diarrhoea due to malabsorption. If the reconstruction was as Mr Starkey suggested A/Prof Russell would expect that it would be an anti-peristaltic effect on the blind limb. He stated "there is no reason why nutrients shouldn't be absorbed if material from the stomach is going into the blind limb, as Mr Starkey described, because it is not completely a blind end and there are other secretions coming down." He felt there were no problems during the operation and was happy at the end of it. Although it never crossed his mind that the surgery was wrong, he acknowledged that the side effects suffered by Mrs Mulqueen following the surgery were the worst that he has ever seen. At no stage did he consider the possibility of an error in his surgical procedure, and expected that Mrs Mulqueen would eventually improve. His only explanation for Mrs Mulqueen's post operative progress was the effect or response of the vagotomy. However he acknowledged that if there was incontrovertible evidence that he made an error during surgery he would have to accept it, and would have no difficulty doing so.

113. In light of A/Prof Brown's alternative version of reconstruction, and noting that the symptoms suffered by Mrs Mulqueen were obviously beyond his expectation A/Prof Russell could not equivocally refute having made a mistake in the reconstruction. He gave evidence that he thinks he has to consider it as a possibility that both A/Prof Brown's alternative reconstruction and his hypothesis are equal possibilities. In relation to whether he was in a position to say whether either of them takes it over into the realms of more likely than not, he answered "only... based on what I feel occurred at the operation was within my normal practice and also having the expertise of Dr Xie".[255]

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[253] Inquest transcript 564.

[254] Inquest transcript 472-3.

[255] Inquest transcript 598-600.

114. It was A/Prof Russell's expectation that Mrs Mulqueen would have being gaining weight by July 2009, as was expected and achieved in almost every case where he had done similar surgery, and he acknowledged that this was an abnormal case. He agreed that on the 25 September 2008 Dr Xie had a real concern about ongoing symptoms and raised his concern as to what the cause of the problems may be in which he indicated that it could possibly be a normal process from the surgery.

115. To his credit, A/Prof Russell acknowledged that were he in the same position as Mr Starkey, having observed what he believed was aberrant and unusual surgery, there was nothing technically difficult for him to check and re-check it, apart from the presence of adhesions which can come from operations. A/Prof Russell conceded that as Mr Starkey is a qualified surgeon, he presumes there is no reason why he would not be able to locate the anastomoses, and that interpreting the T-intersection would be "bread and butter" material for a surgeon, if done properly.

The Cause Of Mrs Mulqueen's Deterioration Shortly Prior To Mr Starkey's Procedure In August 2009

116. I am satisfied that the observations of Mr Starkey are correct, in respect of the aberrant reconstruction performed by A/Prof Russell as head surgeon during the distal gastrectomy and vagotomy procedure performed on 20 August 2008. The malabsorption and clinical deterioration in Mrs Mulqueen's health in the 12 months post gastrectomy and vagotomy would appear to be directly related to the aberrant reconstruction. However, the ultimate cause of Mrs Mulqueen's bowel ischaemia cannot be ascertained. I endorse the evidence of Mr Starkey:

> I'm saying she developed ischaemia which was the reason – or developed profound sepsis and abdominal pain, and that's what made me do the operation. And I found evidence of the previous surgery, but the cause of her death was, I think, a gut ischaemia... I can't see what the final trigger or the final factor was. It's not clear to me.[256]

117. I endorse the evidence of Mr Starkey, concurring with the evidence of Dr Burke, that:

[256] Inquest transcript 184.

> although you can think of a range of possibilities, there is nothing specific which you can put your finger on as being the trigger or a cause, or the significant onset of her deterioration in the days before death or the development of ischaemia of the gut.[257]

118. Accordingly, I endorse the submission of counsel for A/Prof Russell that the evidence does not support a finding that the anatomical reconstruction, even if as opined by Mr Starkey, would have caused Mrs Mulqueen's death. Unfortunately and tragically, the cause of Mrs Mulqueen's rapid and significant onset of deterioration and subsequent death is, and will remain, relatively unknown. It will also unfortunately remain unknown if identification of the aberrant reconstruction, and subsequent reversal, prior to Mrs Mulqueens rapid and significant onset of deterioration, would have ultimately prevented her death.

119. I am satisfied, having considered all of the evidence before me, that no further investigation is required.

120. The evidence satisfies me that the medical management and care provided by Jessie McPherson Private Hospital was reasonable and appropriate in the circumstances, having regard to the complexities involved. The evidence does not support a conclusion that the medical care or management caused or contributed to Mrs Mulqueen's decline or death.

121. I find that Mrs Mary Mulqueen died on 9 August 2009 and that the cause of her death is 1(a) small bowel ischaemia; and (2) distal gastrectomy.

RECOMMENDATIONS

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

122. That the Royal Australasian College of Surgeons consider implementing a process of documenting, by way of photographs or video, and/or independent secondary corroboration (by a relevantly qualified professional) of any alleged observations of evidence of aberrant surgical reconstructions.

123. That the Victorian Surgical Consultative Council educate Surgical Registrars and Surgeons on the importance of checking anatomical landmarks throughout and during the final stage of a Roux-en-Y procedure.

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[257] Inquest transcript 184.

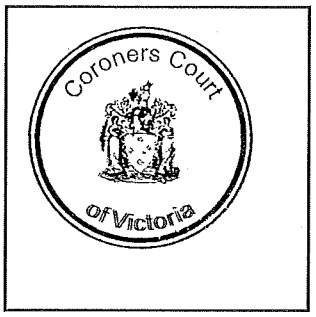
I direct that a copy of this finding be provided to the following:

The family of Mrs Mary Mulqueen;

Investigating Member, Victoria Police; and

Interested parties.

Signature:



JOHN OLLE

CORONER

Date: 12 February 2015