IN THE CORONERS COURT
OF VICTORIA
AT GEELONG

Court Reference: COR 2010 4286

FINDING INTO DEATH WITH INQUEST

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

Inquest into the Death of:	**JUNE OLIVE PEGG**
Delivered On:	28 November 2014
Delivered At:	Coroners Court of Victoria
Hearing Dates:	24th to the 28th March 2014 and 7th to the 8th April 2014
	JACINTA HEFFEY, CORONER
Representation:	Sergeant Sharon Wade – Police Coronial Support Unit - Assisting Coroner Mr M Pegg, Solicitor – Acting for the Pegg family Mr S Cash of Counsel - Acting for Dr Vinna An Mr D Wallis of Counsel - Acting for Barwon Health Dr S Keeling of Counsel - Acting for Mr David Koong Mr J Constable of Counsel - Acting for Dr Michael Malone Mr S Loftus of Counsel - Acting for Dr Matthew Cotter Mr D Burnett of Counsel - Acting for Associate Professor George Kiroff

I, JACINTA HEFFEY, Coroner having investigated the death of JUNE OLIVE PEGG

AND having held an inquest in relation to this death from the 24th to the 28th March 2014 and from the 7th to 8th April 2014

at GEELONG CORONERS COURT

find that the identity of the deceased was JUNE OLIVE PEGG

born on 26th June 1930

and that her death occurred on the 7th November 2010

at Barwon Health (Geelong Hospital), Bellarine Street, Geelong 3220

from:

1 (a) PERITONITIS

1 (b) SIGMOID RESECTION MARGIN LEAK FOLLOWING EXTENDED RIGHT HEMICOLECTOMY FOR COLONIC CANCER

in the following circumstances:

1. Mrs Pegg was taken to Barwon Health Emergency Department on the 24th October by her son-in-law, GP Dr Ian McKay, Her own General Practitioner, Dr Matthew Cotter, had found a palpable mass in her left abdomen during her annual health assessment on the 12th October and a subsequent CT abdomen and pelvis on the 14th October had revealed a mass within the distal transverse colon suggestive of colonic carcinoma. This was in the same location as a mass earlier identified by a PET scan on the 12th May, 2010, five months earlier. A referral for colonoscopy was made and booked for the 26th October, 2010.

2. However, Mrs Pegg suffered a conscious collapse at her home on the 24th October against a background of a recent per rectum bleed and was admitted to Barwon Health on that day under the bed card of Associate Professor George Kiroff. Surgical Fellow Dr David Koong performed a colonoscopy on the 25th October as a result of which a diagnosis of obstructing colon cancer was made. A biopsy was positive for adenocarcinoma.

3. Over the ensuing four days a "*work-up*" was instituted to prepare Mrs Pegg for surgery to remove the cancerous tumour. The operation was performed on the 29th October by Dr Koong, assisted by surgical registrar Dr Vinna An, at the time a third year trainee surgeon under Dr Koong. A colorectal surgeon, Mr Glenn Guest, was the back-up consultant surgeon and he was present, unscrubbed, for part of the operation. The operation was an extended

right hemicolectomy in which the right colon was removed along with the transverse colon and the small and large bowels were joined together (anastomosis).[1]

4. In the course of the laparotomy, a cholecystectomy was also performed as a large calcified gallstone had been identified in Mrs Pegg's gall bladder. This was uncomplicated and added no more than 10-15 minutes to the overall time of the operation.[2]

5. On the 29th October, Mrs Pegg had signed a Consent to a "*laparotomy and subtotal colectomy and/or stoma*" being performed. Dr An took her through the consent process. No other family member was present. There is no evidence to suggest that Mrs Pegg was not independently capable of understanding her choices and of consenting.

6. From all accounts the surgery proceeded uneventfully. Neither Dr Koong nor Dr Guest saw any need to revert to the performance of an end ileostomy and the anastomosis was closed in a satisfactory way.

7. Post-operatively, pain was managed initially by means of an epidural until it was removed on the 1st November. Mrs Pegg was observed to have decreased urine output. Intravenous fluids were administered in the early post-operative period to address this and prevent renal failure. According to the hospital notes, at 10 AM on the 2nd November, Mrs Pegg complained of mild generalised abdominal soreness. On abdominal examination she was noted to have "*generalized tenderness- especially on the left side*". The abdomen was noted to be distended but there was no rebound. At 9 PM, the surgical Cover was asked to see Mrs Pegg in respect of her "*generalized oedema and vomiting*" and complaints of increasing abdominal pain, nausea. A naso-gastric tube was inserted. On that day, Mrs Pegg was diagnosed as having a paralytic ilieus. Abdominal x-rays did not reveal any diaphragmatic free gas as might be expected in a case of anastomotic leak.

8. Over the next 3 days, according to the hospital records, there were signs of improvement clinically although her fluid balance remained of concern. She was hypotensive, which was attributed to the administration of Frusemide (a diuretic). There was no further complaint of abdominal pain and her white cell count was within normal range. On the 5th November, only 50 mls was aspirated from the naso-gastric tube. She was reviewed by Dr An who considered that she was improving. She was keeping fluids down and her bowels had opened. Her oral

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[1] This description was provided in evidence by Dr Koong. See page 242.

[2] I am satisfied that this procedure had no bearing on the course of events that followed. Notwithstanding that no written consent was obtained, I have no reason not accept the evidence of Dr An that he did discuss this with Mrs Pegg and she agreed to the intervention.

intake was improving. Her white cell count and CRP- C-reactive protein measurement was encouraging. Her abdomen was soft without guarding. All these indicia were signs in his mind that the paralytic ileus was resolving. The NGT was removed that morning. She was placed on a light ward diet. An ultrasound revealed a deep vein thrombosis for which prophylactic clexane was administered. Dr An reviewed her again on the morning of the 6th November and described her as "*well, tolerating diet and bowels well open*". She was afebrile and her abdomen was soft. She was to continue Clexane and commence on Warfarin to manage the deep vein thrombosis.

9. Later that day, at 1938 hours, Mrs Pegg's blood pressure was recorded at 82/50. This reading met the hospital criteria requiring a MET call. None was made. At 1943 hours her blood pressure had improved to 96/52. Dr Samantha Buchholz, a general surgical intern, saw Mrs Pegg on a number of occasions that day. Her plan was to increase urine output. She ordered 20 mg stat dose of frusemide. She also ordered Gelofusine in order to increase Mrs Pegg's intravascular fluid volume. This commenced at 2020 hours. Her plan was to administer a 20 mg bolus of Frusemide IV once the blood pressure had stabilised and then re-commence intravenous fluids. According to the chart. Mrs Pegg's blood pressure was 130/60 at 2105 hours and 20 mg Frusemide was administered at 2145 hours. Dr Buchholz finished her shift at 2130 hours, handing over to Dr Ashrak Aboud, another intern. She told the court that she asked Dr Aboud to see Mrs Pegg within half an hour, and, if there were any problems to call Dr Mimilstein, the general surgical registrar. She, herself, had previously phoned Dr George Mimilstein on two occasions and he was aware of her plan. Dr Aboud, however, has no recollection of seeing Mrs Pegg during her shift from 9.30 onwards although she concedes that she is recorded as being present at 0510 hours on the 7th November.

10. A MET call was made at 0455 when Mrs Pegg's blood pressure was 60/30. The Team arrived at 5 AM. At 6.25 a Code Blue was called following cardiac arrest. Mrs Pegg was transferred to the ICU but could not be resuscitated.

11. An autopsy was conducted at the Victorian Institute of Forensic Medicine. The cause of death was found to be as stated above. It would seem that an anastomotic leak was not suspected at any time post-operatively. Indeed, Dr Koong told the court that he initially suspected a pulmonary embolism arising from deep vein thrombosis to be the likely cause of death.

ISSUES ADDRESSED AT INQUEST HEARING

12. The following issues were identified at the Directions Hearing as requiring to be resolved as far as possible at an inquest hearing.

    - Delay in diagnosis
    - Choice of surgical procedure
    - Post-operative management
    - Management of Mrs Pegg on the 6th November 2010.

DELAY IN DIAGNOSIS

13. Mrs Pegg attended Respiratory Physician Dr Michael Malone on two occasions after referral from her General Practitioner Dr Matthew Cotter, on the 29th April 2010 and on the 17th May 2010. She had been complaining of breathlessness and there had been concerning Chest x-ray and CT chest scan results. After the first consultation, Dr Malone ordered a PET scan and on the second visit, these results were discussed. The PET scan reported an unexpected finding of a mass like lesion in the transverse colon associated with intense tracer uptake suggestive of a colonic neoplasm.

14. The evidence of Karen Pegg, Mrs Pegg's daughter in law, and Dr Malone, differs in relation to the discussions regarding the PET scan revelation. Dr Malone says that he discussed these results with Mrs Pegg on the 17th May 2010 and that she was alone on that occasion. He said that he discussed whether she had any concerning symptoms and she had none. He offered to call her daughter, son in law but she asked him not to do so. She had been adamant that she did not want any follow-up investigation. She told him that she had had a colonic stricture in the same location that had been identified some time before. In his report to the referring GP, Dr Cotter, Dr Malone stated merely that he had chosen "*therefore not to pursue it further*". He did not describe the conversation they had had regarding Mrs Pegg's determination not to pursue this any further. The latter was contained in some detail in his statement prepared for the Coroner. Karen Pegg told the court she accompanied her mother on one occasion and it was the second occasion and recalls a scan being shown and that there was mention of a "*hot spot*" and that Dr Malone had told them that he would let GP Dr Cotter deal with any subsequent colonoscopy arrangements. She did not recall any discussion about her mother's symptoms or lack of them.

15. It is impossible to reconcile these two accounts. Dr Malone gave evidence that at the first appointment he put a scan on the screen – but this was the CT scan. On the second occasion

he put up the PET scan. However, the possibility that Karen Pegg may have confused the two scans does not resolve the other significant conflicts in the two accounts about the subsequent conversation. The most significant discrepancy relates to Mrs Pegg's amenability to the idea of undergoing further testing. According to Dr Malone she was quite clear that she did not want any further testing. According to Karen Pegg, her mother agreed with her that she should "check it out with Dr Cotter". There is no evidence that she ever did. Nor is there any evidence of the matter being discussed with her by her family either in the ensuing months or at the time of the ultimate diagnosis. There is no mention in Dr Cotter's notes of Mrs Pegg having raised it with him in her four subsequent consultations with him, including the visit on the 12th October (for her annual health assessment) when Dr Cotter found a palpable mass in her left abdomen.

16. Dr Malone made no specific notes of the consultation with Mrs Pegg on the 17th May. He relied on his report to Dr Cotter as constituting his notes. Karen Pegg made no notes in relation to her visit to Dr Malone with her mother.

17. In any event it is not necessary to resolve this conflict as Dr Malone frankly conceded that he had erred. He told the court that he should have telephoned Dr Cotter about it and that he should have arranged a colonoscopy. He said it was his practice to arrange further testing himself, (even though it was not in his area of expertise), rather than leaving it to the GP. This is supported by the comment in his report to Dr Cotter that *he* had decided not to pursue the matter further. He acknowledged that his failure to do this had led to a significant delay in diagnosis. He said that faced with the same situation he would act differently.

18. The tumour in question was a particularly aggressive one, according to the evidence. I consider that it can be confidently stated that a timely colonoscopy would have confirmed the diagnosis and Mrs Pegg would have been in a better position, at this earlier stage, to survive any surgical intervention.

19. Dr Cotter told the court that he relied on the decision of Dr Malone not to pursue the matter further. Associate Professor John Mackay, an independent colorectal Surgeon retained by the Coroners Office, at p 599 of the Transcript, told the court that he considered it was not unreasonable for Dr Cotter to not act on the PET scan report after receiving advice from Dr Malone that he had chosen not to pursue it further. Dr Cotter told the court he was not familiar with interpretation of PET scans, and, indeed, this was the only one he had ever encountered in practice. As noted above, Mrs Pegg never raised the matter with him in their subsequent visits.

CHOICE OF SURGICAL PROCEDURE

20. Associate Professor Mackay told the court that Dr Koong had, in his view, erred in deciding that Mrs Pegg was suitable for anastomosis. In his statement read to the court he said:

> *"Given the debilitated state of the deceased on admission, with significant anaemia, dehydration, electrolyte disturbance, and in particular, hypo-albumin anaemia of a severe degree reflecting chronic malnutrition, an alternate surgical option would have been to have undertaken resection of the tumour, that is, extended right hemicolectomy, with end iliostomy and oversew of the distal colon. This embodies no anastomosis and thus the risk of leaking anastomosis with potential for subsequent outcome as occurred with the deceased, is eliminated."*[3]

He told the court that if she were to have an anastomosis it should have been performed with a covering diverting proximal loop ileostomy (sited outside the abdomen and visible). In evidence, he said that she was at *"high risk of a poor outcome. High risk of an anastomotic leak. High risk of other complications."*[4] In evidence about the consent process, he said he would not have entertained at all the surgical option that was ultimately adopted by Dr Koong.[5]

21. Associate Professor Mackay told the court that ileostomy was routinely performed in an emergency situation, such as a major obstruction or perforated bowel and he agreed that this was not the case with Mrs Pegg. However, he described her case as *"semi-elective/semi urgent"*[6] and her pre-operative condition as constituting a *"significant risk"* for anastomotic leak. He told the court that this was the appropriate test, not, as suggested to him by Counsel for Dr Koong, whether *"it was more likely that she would not have an anastomotic leak than she would have a leak."*[7] Dr Koong, in evidence, conceded that Mrs Pegg was *"at higher risk than expected in the spectrum of patients that present to us, so it's possible, in fact I think likely, that it was a failure of healing which caused her anastomotic leak."*[8] He said the fact that she had presented to the emergency department was significant.

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[3] See pp 105-6 Inquest Brief.

[4] See Transcript P 514.

[5] See Transcript P. 510.

[6] See Statement of Assoc Professor Mackay Inquest Brief P.106.

[7] See Transcript P 516.

[8] See Transcript P 239.

"So we know in practice that people who present as emergencies in a non elective fashion are at higher risk of developing all complications of surgery.... So in general terms we did identify from the outset that she was at higher risk than perhaps someone who was undergoing elective surgery."[9]

22. Associate Professor Mackay cited Mrs Pegg's low serum albumin level on admission and, pre-operatively, her anaemia. He said these features would indicate that that her ability to heal was grossly lessened and that this should have influenced the choice of surgery.[10] The presence of a colorectal surgeon (of his professional acquaintance) in the theatre at some stage during the operation and of there being no evidence of his expressing concern about the choice of surgery did not persuade Associate Professor Mackay that Mr Glenn Guest was aware of the *pre-operative condition* of Mrs Pegg. There was nothing to suggest that Mr Koong had discussed the pre-operative findings with Mr Guest. That Mr Guest expressed no concern about the mechanics of the surgery did not surprise him.[11]

23. Dr Kiroff told the court that the features present upon Mrs Pegg's admission, in particular her low albumin level, insofar as it was indicative of her low nutritional status, were found in samples taken soon after she had presented following a conscious collapse against a background of not being obstructed, no vomiting or having a substantial weight loss. Furthermore, he was of the view that had a stoma been fashioned, it was unlikely that Mrs Pegg's chronic obstructive airways disease and her *"limited anaerobic threshold"* would have permitted a later reversal operation. Unfortunately, there was no evidence, one way or the other, as to whether the option of anastomosis with the diverting loop was considered by Dr Koong.

24. Making a retrospective judgement about the quality of the decision-making involved is notoriously difficult. Associate Professor Mackay is a colorectal surgeon. Dr Koong is not. Not uncommonly in inquests, one can get a variety of professional opinions in relation to matters of clinical judgment. Associate Professor Mackay told the court that statistics in terms of risk of anastomotic lead are not reliable as the clinical features of each case differ. He was of the view that the risk was unacceptably high in Mrs Pegg's case. Dr Koong told the court that ileostomies have their own morbities and listed de-hydration, electrolyte imbalances and

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[9] See Transcript P 240.

[10] See Transcript P 553.

[11] Mr Guest was not called as a witness nor was he asked to provide a witness statement either by the Coroners Office or Counsel for any of the parties.

renal failure, especially with elderly patients, prolapse, parastomal herniation and the practical difficulties of stoma care. The stoma option had been considered and left as an option if difficulties emerged in the course of the anastomosis. None had emerged in the course of the operation.

25. I do not make any adverse comment in respect of the choice of surgery in view of the conflicting views sincerely and, it can be said, not unreasonably, held by the clinicians who were involved in Mrs Pegg's care. Further, there is no evidence that the surgery was not performed competently.

26. Suffice to say that, notwithstanding the semi-elective nature of the surgery, Mrs Pegg was objectively at greater risk of an anastomotic leak due to her age and low nutritional status which could potentially impact on her healing capacity and therefore close attention to her post-operative course should have reflected this.

POST SURGICAL MANAGEMENT

27. Associate Professor Mackay was particularly critical of the failure by treating clinicians to suspect an anastomotic leak on the 4th post-operative day (or on the 2nd November), In the succeeding days leading up to the late afternoon of the 6th November, in the main, the clinical and objective indicia seemed to be re-assuring and not suggestive of any infective process. However, Dr Mackay told the court, in his view in any patient who has had intra-abdominal anastomosis and who then has a disordered post-operative course (and he cited paralytic ileus alone) it is "*mandatory*" to suspect anastomotic leak as a possible cause. He said that at that time, the 2nd November, steps should have been taken to determine if there had been a leak or not.[12]

28. On the 2nd November, there are entries in the hospital progress notes that suggest that Mrs Pegg was complaining of abdominal pain. The first reference to abdominal pain is at 10 AM at which Dr An was present. It is noted that Mrs Pegg was complaining of *"mild generalised abdominal "soreness"."* On examination her abdomen was "*soft*". At 9 PM, an entry reads, *"Asked to see patient re generalized oedema and vomiting". "Was previously recovering well post-op and tolerating light ward diet. Today gradually increasing abdominal pain associated with nausea and vomiting".* On abdominal examination, it is noted that there was *"generalised tenderness especially on the left side. Distended...No rebound".* Paralytic ileus was suspected. Over the succeeding days, the pain appeared to resolve. Attention was

[12] Transcript P 491.

primarily paid to fluid balance problems, low urine output, low albumin levels and significant oedema. However, these problems had been present pre-operatively as well and so did not raise any alarm bells.

29. It was the consensus of all the medical witnesses that it is likely that the leak occurred on the 2nd November when the paralytic ileus was diagnosed.

30. Mr Kiroff told the court that his attention *"should have been drawn at some stage over the next day or two (post 2/11) that she had had that episode of pain and that urine output was particularly poor for a few hours on that day."*[13]

31. As stated above, Associate Professor Mackay was of the view that the diagnosis of paralytic ileus alone should have aroused suspicion of a leak and a CT scan should have been conducted to rule it out. The fact that pain had been complained of in the left side of the abdomen was another warning sign. *"When an anastomosis leaks, the pain is on the left, not on the right side where the surgery was undertaken."*[14] Dr Watters, General Surgeon at Barwon Health told the court that a certain degree of postoperative ileus is normal following major abdominal surgery and that in the absence of overt signs of sepsis such as swinging temperatures, tachycardia and hypotension, this would not prompt an early CT scan. [15] Dr Mackay strongly disagreed with this and said that most colorectal surgeons would agree with his position that a CT scan should have been ordered with intravenous contrast (after advice from a radiologist) and also rectal contrast. It may not have shown the leak but it is likely to have shown some evidence that a leak had occurred.[16] For example, it may have shown the collection subsequently found on autopsy; it may have shown gas outside the lumen of the colon and small bowel, which could be definitive evidence of perforation. He said that knowing the findings at autopsy it is more likely than not that the CT scan would have shown an abnormal result. He stated that there would be no deleterious side effect to contra-indicate the performance of a CT scan.

32. Associate Professor Mackay told the court that based on the autopsy findings, the hole was in the order of 2-3 millimetres and that that meant that the fecal content leaked out and formed a collection initially and it may have leaked into the peritoneal cavity, which had given Mrs Pegg some generalised pain. He said that *"if that was then contained which it can do*

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[13] Transcript P. 408.

[14] Transcript P 525.

[15] Inquest Brief P. 117.

[16] Transcript P 495.

naturally, so it doesn't go on to a roaring general peritonitis which is one outcome, so this leak was contained to some extent but still a leak, then the patient's clinical condition would not be as rapid as if the patient developed an acute general peritonitis due to gross faecal swelling..."[17]

33. Mrs Pegg's family told the court that they had been very concerned about her periodic vomiting/regurgitation and her failure, in their eyes, to be improving. However, on all the parameters that would normally be associated with peritonitis caused by anastomotic leak, the indications were to the contrary and the picture was one of gradual improvement. Her bowels had opened, suggesting that ileus was resolving. Her fluid intake had improved. Her naso-gastric tube was removed on the 5th November and, according to the progress notes, she was keeping fluids down. Her WCC was down to normal range and her CRP reading was encouraging. There was no fever or any objective criteria suggestive of any infective process and nor was Mrs Pegg complaining of any symptoms that might suggest such a process. None of the witnesses ascribed significance to the evidence of regurgitation provided by the family, including Associate Professor Mackay. Dr Koong said that without having witnessed it, he did not know how much significance to attach to the episodes described by the family. If the vomitus was as described, namely "like coffee grounds" he said this would suggest a gastro-intestinal bleed. There had been no evidence of this on the post-mortem examination. He said that if Mrs Pegg was not tolerating her diet one would have expected larger volumes. In the circumstances, it would appear that the observed regurgitation episodes had no bearing on the ultimate outcome.

34. Associate Professor Mackay considered that the post-operative management of Mrs Pegg was inadequate. He cited the absence of file entries from the senior surgeons involved. He said that Dr Koong seeing the patient on Days 1 and 3 post-operatively and speaking with registrar each day was inadequate. There was no evidence that Dr Koong was at any stage aware of the observations on the 2nd November. He was informed that a paralytic ileus had been diagnosed.

35. Dr Koong conceded that in hindsight he should have personally attended Mrs Pegg every day and personally checked blood results and he told the court that he has changed his practice as a result of this case.[18] Associate Professor Kiroff was a Consultant General Surgeon at the Geelong hospital and head of Surgical Unit 1 – to which Mrs Pegg was admitted. He was,

[17] Transcript P 527-8.

[18] Transcript P 265.

however, employed on a fractional basis – equivalent to 11 hours per week. He was available to provide advice but in these circumstances, advice is only going to be provided when sought. Dr An was re-assured by the apparently improving picture, did not recognise the potential implications of the pain complained of on the 2nd November and, therefore, did not seek advice from Dr Koong about its possible significance.

36. It was the absence of concerning signs typical of an infective process, and the re-assurance derived from this that led to the failure to properly manage Mrs Pegg post-operatively. One feature that was urged on the Court on behalf of the family was the left shift in the blood film results. However, the evidence from Dr Koong was to the effect that these changes are very non-specific.[19] Professor Watters agreed that these were difficult to interpret. He said that on Days 1 and 2 post-operatively they may be due to inflammation. However, if they are still there on Days 4 and 5 post-operatively, they may be an indication of infection. Associate Professor Mackay said these features may be related to anastomotic leak but more likely to other factors such as poor fluid balance management and the fact that any patient who undergoes major surgery, particularly when in a debilitated state, may then mount a neutrophilic of the left shift.

35 At page 500 of the Transcript, Associate Professor Mackay told the court in answer to an observation by Counsel for Dr An that Professor Watters had stated that Mrs Pegg did not have any significant hard indicators of sepsis:

> *As I said before, that's not relevant in determining whether or not an anastomotic leak might have occurred.*
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> *But it has to be relevant, does it not, because - - -?---No, if - well, put it this way - put it this way, Your Honour. If such temperature, peritonitis, severe pain and so on had occurred in a patient post-operatively, then it would be obvious that sepsis had occurred and probable the cause of sepsis was an anastomotic leak and it was mandatory to follow, that might be an overt signs and so on - whatever they are - but in this instance those signs weren't present. So the absence doesn't mean that there was no necessity to pursue the possibility of an anastomotic leak at the time when the paralytic ileus was diagnosed which I think was 2 October (sic)*
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> *THE CORONER: So you are saying that the existence of the paralytic ileus, in itself,*

[19] Transcript P 229

irrespective of the other indicators, was enough of a warning to perform a further investigation?---Absolutely.

37. Associate Professor Mackay referred to other features that might otherwise have been reassuring. He said that the fact that Mrs Pegg *" had small bowel movements did not mean that her intestinal function had returned to normal and the fact that her abdominal distension may be said to have decreased in the ensuing days was probably the result of the naso-gastric tube with the several litres of fluid then aspirated from her stomach and her intestine...."*[20] The central issue as highlighted by Associate Professor Mackay was that the *absence* of features typical of infection, the "*hard indicators*" of sepsis, and the apparently improving picture should not have provided re-assurance and obscure the significance of the history of a day – that was the 4th day post-operatively - on which there were complaints of left sided abdominal pain in a high risk patient who was significantly pre-operatively debilitated.

38. It cannot be said that a CT scan conducted on the 2nd November would necessarily have alerted the treating team to the presence of an anastomotic leak. I accept the expert evidence of Associate Professor Mackay that one should have been undertaken, given the risk factors that pertained to Mrs Pegg. Dr Koong should have been advised about the pain found on the 2nd November and he should have attended on her or sought the attendance of Dr Kiroff. Whilst it cannot be said with any certainty that a CT scan at that stage would have picked up the anastomotic leak, it is likely that, knowing, as is now known, the findings at autopsy, any CT scan would have picked up an abnormal result warranting further investigation. At that time, consideration would likely have been given to further surgery to perform an ileostomy. Presumably Mrs Pegg would have consented to this. Associate Professor Watters told the court that had the leak been identified during the week prior to her death, a re-laparotomy would have been required which would have been difficult for Mrs Pegg to withstand in light of her pleural effusions, low serum albumin, poor nutritional state and anaemia.[21] Even if this were the case, it is hard to argue with the fact that the only chance Mrs Pegg had to survive the leak was further surgery. Without it, she had no chance at all.

39. Dr Koong told the court that the outcome in this case has affected his practice. He described it as having been *"a big learning case"*. He went on *"I personally check blood results every day for example, looking for deviations. I will discuss with my registrars every day but I also*

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[20] Transcript P 499.

[21] See Transcript P 357.

attend as well, and CT scans would be performed if there are deviations from what I would regard as normal and so I think a multitude of changes have occurred that I think make something like this less likely to occur in my practice."[22]

40. Given this concession on Dr Koong's part, it is disturbing that Counsel for Barwon Health in his submission asked me to dismiss Associate Professor Mackay's evidence in this respect as having "*the hallmarks of classic hindsight bias*" and commenting that "*the appropriate approach would have been for Professor Mackay to attempt to place himself in the position of the surgeons on the spot at the time and consider prospectively the appropriate approach to adopt.*"[23] The point I believe that is being made by Dr Koong is that this case has taught him to be prospectively suspicious of any "deviations" of the kind that occurred in this case when he is dealing with a similar situation. The allegation of hindsight bias was put to Associate Professor Mackay by Counsel for Dr An. To my mind, he answered it appropriately by agreeing that he did have the *benefit* of hindsight but that did not change his view as to the manner in which Mrs Pegg's treating team should have responded once they had diagnosed the paralytic ileus.[24]

MANAGEMENT OF MRS PEGG ON THE 6TH NOVEMBER, 2010

41. Dr George Mirmilstein was the surgical registrar rostered to provide weekend cover for Surgical Ward 1 and the Emergency Department. On Saturday the 6th November, Dr Samantha Buchholz was the covering medical intern for all four general surgical teams. Her shift went from 7.30 AM to 9.30 PM with handover to in-coming Dr Ashrak Abuod at 9 PM Saturday night.

42. Dr Buchholz was asked by nursing staff to see Mrs Pegg at around 3.30 PM on the 6th November. She noted that as a result of a review that morning, Mrs Pegg had been upgraded by Dr An to a light ward diet in response to what appeared to be a "resolving ileus". The reason Dr Buchholz was asked to see Mrs Pegg was due to concerns about her fluid balance. Mrs Pegg made no complaint of pain. Dr Buchholz phoned Dr Mirmilstein to discuss the abdominal distension which she considered had increased since she last recalled seeing Mrs Pegg on the 31st October. She was mainly concerned about the lack of urine output. She noted that on that day, an order had been made that Mrs Pegg be orally administered Frusemide, a

[22] See Transcript P 265.

[23] See Submission on behalf of Barwon Health P 4.

[24] See Transcript Pp490-491.

diuretic, at 40 mg twice daily. Noting that Mrs Pegg had not received her noon dose, Dr Buchholz ordered a stat dose of 20 mg intravenously. For reasons she could not now recall, the dose was not administered until 5.10 PM and it was given orally. She told the court that she attended Mrs Pegg a number of times later that shift but made no notes in the progress notes.

43. Mrs Pegg's blood pressure dropped to 82/50 at 7.38 PM that evening. This reading meets the hospital criteria for a MET call - (less than 90mm of mercury). None was made. Dr Buchholz recalls seeing Mrs Pegg due to low blood pressure concerns, but prior to her review, the blood pressure had increased to 96/52 at 7.43 PM. In order to further raise the blood pressure she ordered 500 mls Gelofusine IV, and, according to the hospital file, this was commenced at 8.20 PM. Dr Buccholz' plan, she told the court, was that once Mrs Pegg's blood pressure had improved, a further IV bolus dose of Frusemide was to be administered. This order was recorded and, according to the records, this was administered at 9.45 PM. Hartmann's' solution (CSL) was to then be recommenced IV at 100 mls over 16 hours as had been the plan documented on 5th November. Dr Buchholz told the court that she telephoned Dr Mirmilstein at about 9 PM to advise him of the blood pressure concerns. When she handed over to Dr Abuod, which she recalls occurred "*in the computer room*", she remembers asking Dr Abuod to review Mrs Pegg within half an hour to an hour.

44. Registered Nurse Division 1, Paulette Newling was assigned the care of Mrs Pegg during her shift on the 6th November from 1.15 PM to 9.45 PM. It was on her shift that the blood pressure dropped to the MET call requirement. She told the court that she did not make a MET call as it was her practice to always get a second opinion and that when the blood pressure was re-checked a few minutes later it was recorded as being above the limit. The last reading she took before going off duty at 9.05 PM recorded it as 130/60. The respiration rate was 22 and oxygen saturation was 98 per cent on 2 litres of oxygen.

45. Not only was there no further medical review, there were no nursing observations taken between 9.05 PM on the 6th November and 3 AM on the 7th November- this in a lady with significant fluid balance problems, with episodes of hypotension, tachycardia and oliguria. At 3 AM her blood pressure was 90/50; at 4.40 [25](?) it was 80 or 86 (?) and at 05.10 AM it was 50. A MET call is recorded in the hospital file to have been at that time.

[25] The presence of question marks denotes difficulty in deciphering the exact numbers.

46. Registered Nurse Leonie Neal-Dawson was assigned the care of Mrs Pegg after RN Newling went off duty. It was she who made the MET call she believed at approximately 4.55 AM. Her shift on the 6th November 2010 was from 9 PM to 7.30 AM. She attended Mrs Pegg at various times until 2.30 AM, when she went on a meal break. These attendances involved commencing Hartmann's infusion at 10 PM; Administering oxazepam at 10.15 PM; noting bowel action of approximately 200 mls at 11 PM and administering droperidol (for nausea) at 11.30 PM and measuring urine output. She tallied the fluid balance readings at midnight and at 1 AM recorded 30 mls urine on the Fluid Balance chart. She did not check vitals.

47. When she returned from her meal break (from 2.30-3.30 AM), she noted that Mrs Pegg's blood pressure had been taken and recorded as 90/50 at 3 AM– again qualifying for a MET call. None had been made. At 4.10 AM, Nurse Neal-Dawson paged the night surgical resident, (whom she wrongly named in her statement as a Dr Lan but in evidence corrected to be Dr Abuod), as she was concerned that there had been only 10 mls urine passed at the last reading at 3.30 AM and none since then. She was also concerned because of the persistent low blood pressure. She said in her statement that the doctor did not answer her page until between 4.30 and 4.40 AM saying that she had been held up in the emergency department. She advised Ms Neal-Dawson to administer 20 mgs IV frusomide and she would review Mrs Pegg as soon as she could. The nurse in charge advised Ms Neal-Dawson to first check the blood pressure before administering the frusomide. When she did this she found the blood pressure was 80/40; oxygen saturation was now 89% on 2 litres nasal prongs and the heart rate was 112 bpm. She was advised to re-page the doctor but given the previous delay in response, she elected to initiate the MET call herself. According to the Frequent Observation Chart this was done at 5.10 AM. By this stage the blood pressure was recorded at 60/30; the Oxygen saturation rate was 84%, now on 8 litres.

48. Dr Abuod gave evidence in which she stated that she had no recollection of the handover or of ever seeing Mrs Pegg. She said that had she reviewed Mrs Pegg, she would have recorded "*anything needed*" in the patient's file. Prior to October 2010, Dr Abuod's only experience as a resident at Geelong Hospital had been in the psychiatric unit and she had started as a night surgical resident only days before Mrs Pegg's death. She acknowledges that the file records her as being present during the subsequent MET attendance as she had written a pathology slip at that time. She said that the absence of any note by her of an earlier attendance suggests either that she did not attend (and she maintained that she would have done so, had that been the plan) or she had attended and found Mrs Pegg asleep and all vitals stable, in which case

she would not have made a note. The state of this evidence is most unsatisfactory. If Nurse Neal-Dawson's evidence is to be believed, it seems extraordinary that Dr Abuod would not recall the fact that she was asked to review a patient who had qualified for a MET call and who was subsequently responded to with a MET call and Code Blue, at which she, Dr Abuod, was present. It was submitted by Counsel for the hospital that *"the evidence was clear in stating that she (Dr Abuod) was not aware at the end of her shift that Mrs Pegg had died and she only became aware of Mrs Pegg's death in approximately July 2013 when she was forwarded the medical records to prepare her statement..."*. Dr Abuod may not have learned of Mrs Pegg's actual death until then, but this is of no relevance in terms of her acknowledged involvement in the MET process (as evidenced by her signature on the file) prior to Mrs Pegg's death and does not challenge the evidence of Nurse Neal-Dawson nor the evidence of Dr Buchholz that she had been asked to review Mrs Pegg that evening.

49. Dr Mirmelstein told the court that "*with the retrospectoscope*", he should have attended Mrs Pegg on the evening of the 2nd November when he received the call from Dr Buchholz. As was stressed in the Submission on behalf of Barwon Health, *"the interns were of a very junior level and Mrs Pegg's complex presentation made it almost impossible for an intern to detect the underlying leak"*. I have no doubt also, that Dr Buchholz was influenced by the encouraging review by Dr An of Mrs Pegg on the morning of the 6th November. Nevertheless, Dr Buchholz was taking on the management of a complex set of presentations requiring a fairly sophisticated response. As was commented upon by a number of witnesses, the administration of Frusemide would likely have the effect of exacerbating the hypotension by depleting intravascular volume further. Dr Buchholz was trying to resolve the hypotension by giving Gelofusine, a volume expander with then as a second step the Frusemide to increase urine output. Dr Koong commented that he, as a principal, does not allow any of his junior doctors to prescribe intravenous Frusomide unless they have first checked with him because it can be counter-productive in certain circumstances "*as in this case*". He would have liked Dr Mirmelstein to have attended that night and re-iterated that he personally should also have been called and that he was available.

50. I think it can be fairly stated that even had Mrs Pegg been appropriately responded to after the MET criteria were first met at 7.38 PM that night and the presence of an anastomotic leak discovered, the chances of her surviving any subsequent surgery, involving as it would have done, a laparotomy, would have been very slim indeed.

51. This, of course, is of little consolation to her family.

52. I believe, however, that the family should instead try to derive some consolation from the fact that her last illness was not without some valuable consequences in terms of the lessons learned both by Barwon Health and a number of the medical practitioners and other health professionals involved.

53. As far as Barwon Health were concerned, the lessons learned from this unfortunate case were outlined in the evidence of Dr Watters as follows:

- One: The need to consider the possibility of an anastomotic leak when faced with ileus together with other signs of failure to progress or systemic upset.
- Two: that an anastomotic leak can occur even when there is no fever or raised white cell count, the clinical signs can be very subtle and the patient just fails to progress until a point at which they significantly deteriorate.
- Three: that leukocyte bands reported in a blood film are strongly associated with sepsis one cause of which is an anastomotic leak
- Four: low serum albumin is an independent risk factor for mortality following colorectal surgery, the strength of this association has been confirmed by research conducted in our department in the two years since this case occurred.
- Five: the value of considering a CT scan of the abdomen in patients with ileus for whom the reason for failure to progress is uncertain.

54. He went on to tell the court that these learning points had been discussed with surgical registrars and surgical teams in surgical audit meetings and that there had been emphasis on the need to consider what is not obvious and to be constantly vigilant with regard to the possibility of an anastomotic leak which can on occasions present silently as it did in this case.

55. The Hospital has re-designed the Observation Charts, which are coloured and shaded in a way to alert staff as to the criteria for a MET call, as to when a particular response is required and the urgency of that response.

56. I have already alluded to the changes Dr Koong has made to his practice.[26]

57. I have already alluded to the changes Dr Malone has made to his practice.

58. I do not propose to deal further with the Submissions or Replies. The references to "*duty of care*" etc. contained in the family's submissions are not strictly applicable in a coronial

[26] See paragraph 39 hereof.

enquiry which is primarily concerned with establishing the facts, assessing the quality of care and its reasonableness and extracting useful material on which to base recommendations to avoid another death in similar circumstances.

59. As a matter of fairness, the rule in Browne v. Dunn applies to inquest hearings and it can be assumed that I have been mindful of this when reading and assessing the submissions made. I therefore do not propose to list and rule on each of the areas of conflict in this area.

COMMENTS

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

In view of the steps taken by Barwon Health in response to the defects in the post-surgical management of Mrs Pegg, I do not propose to make any recommendations in those areas. The only recommendations I do make are applicable to hospitals and health care services in general. A great deal of time was spent in the course of this investigation combing through the hospital file and then liaising with the hospital's solicitors trying to identify the names of various persons who had made notes in relation to their involvement with Mrs Pegg's care and their precise role at the hospital. Frequently initials were used or pager numbers.

The documentation of a person's health care requires the record to be accessible, legible, chronological, dated, accurate, and promote accountability by the use of the identification of any nursing or medical practitioner providing making such entry. This is supported by policy and standards including but not limited to the following: World Health Organization Components of Medical record (2003, 2006), Australian Standards for records management, paper-based health records and digitized (scanned) health record system requirements and the Australian National Safety and Quality Health Service Standard 1.9 *Using an integrated patient clinical record that identifies all aspects of the patient's care.* It is the responsibility of the healthcare organisation and the individual registered practitioners and clinicians to ensure the documentation of a patient's care is high quality.

The other area of concern is the *absence* of any notes in some cases, and I refer particularly to Dr Abuod. She had no independent recollection of Mrs Pegg and was unaware that she had died until she was asked to make a statement. I consider it would not be unreasonable or impracticable to require that all hospital staff who have had any recent involvement in a coronial case be required to prepare notes of their involvement whilst the matter is still fresh in their minds. At times, particularly when even the identities of the relevant people are unclear from the records, by the time the compilation of the Coronial Brief is underway, not

infrequently a considerable period of time has elapsed and memories are hazy. A practitioner who documented in a patient's medical record chronologically, consistently, and dated and notarized their entries, could confidently rely on those records and any additional records to aid their personal recollection.

RECOMMENDATIONS

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

1. To improve the safety of patients of healthcare organisations I RECOMMEND that the Victorian Department of Health and the Australian Commission on Quality and Safety in Healthcare undertake action to raise the awareness of healthcare organisations of their responsibility to ensure quality documentation of patient care.
2. To improve the safety of patients, I RECOMMEND that Barwon Health undertake action to raise the awareness of their practitioners and clinicians to their obligations to provide quality documentation of patient care, including documentation of clinical handover between shifts.[27]
3. I RECOMMEND that Barwon Health, as part of their process for a patient whose death may be regarded as a coronial case, in that it appears to fulfil the criteria for a "reportable death" in Section 4 *Coroners Act 2008,* encourage staff at the first opportunity, to commit to writing a record of their involvement in the management of that patient that they can refer to throughout any internal and/or external investigation.

I DIRECT THAT A COPY OF THIS FINDING, COMMENTS AND RECOMMENDATIONS BE FORWARDED TO:

The Family of June Olive Pegg via Wightons Lawyers

Ms Sharon Russell, MDA National Insurance Pty Ltd

Ms Julie Brooke-Cowden, MDA National Insurance Pty Ltd

Dr Paul Mestitz, Senior Medical Specialist, Governance Support, Geelong Hospital

Giovanni Marino, Health Legal

Kerri Thomas, Sparke Hilmore

Mark O'Sullivan, Moray & Agnew

Sarah Faraone, John W Bull & Sons

[27] In this case there was no documentation at all to support the detailed handover between Drs Buchholz and Abuod on the change of shift on the 6th November.

Sarah Faraone, John W Bull & Sons

Vanessa Nicholson, Avant Law Pty Limited

Royal Australasian College of Surgeons (RACS)

Dr Pradeep Philip, Secretary, Department of Health

Mr Mike Wallace, Chief Operating Officer, Australian Commission on Safety and Quality in Health Care

Signature:

JACINTA HEFFEY
CORONER
Date: 28 November 2014