District Health Board
General Surgeon, Dr C

A Report by the
Deputy Health and Disability Commissioner

(Case 17HDC00449)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Contents

Executive summary

1. This report considers three operations performed on a man by a general surgeon in a regional hospital in 2016, following which, sadly, the man died.

2. Shortly after the initial surgery to remove an abdominal mass, the man showed signs of an intra-abdominal bleed. He was returned to theatre for a second operation, which took nearly four hours.

3. At the time of the second operation, a request was made to a main centre hospital for the man to be retrieved and transferred to the Intensive Care Unit. The retrieval team arrived at 8pm but the man was too unstable to be moved. Shortly after 8pm, the man was returned to theatre for a third operation to stabilise him for transfer. He was then transferred and arrived at the ICU at around 10.20pm, but he died at 12.35am.

4. This report highlights the importance of adequate preoperative work-up and planning, and the need for clinicians to be aware of their own limitations and the limitations of the clinical setting in which they operate.

Findings

5. The man had a catastrophic haemorrhage following an unnecessary operation in a small hospital that was not designed or supported for the surgery that was performed. In the Deputy Commissioner's view, the surgeon's treatment overall was woefully poor in the following ways:

- There was inadequate preoperative work-up and planning.
- The surgeon performed the operation in a small and unsupported centre, and did not abandon the first operation when no mass could be found for biopsy. He should have stopped before the situation became irretrievable.
- The surgeon did not confine the second operation to a damage-control laparotomy, and the man should have had proper abdominal packing, been stabilised, and transferred to the main centre hospital.

6. The Deputy Commissioner found that the surgeon failed to provide services with reasonable care and skill and, accordingly, breached Right 4(1)[1] of the Code of Health and Disability Services Consumers' Rights (the Code).

7. The Deputy Commissioner was also critical about the district health board (DHB) because the decision that the mass would not be amenable to radiological guided biopsy was not made by an interventional radiologist, the exact location of the required biopsy was not checked prior to the referral, and appropriate protocols were not in place regarding the type of surgery that could be performed at the regional hospital. Furthermore, the surgeon

[1] Right 4(1) states: "Every consumer has the right to have services provided with reasonable care and skill."

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appears to have been insufficiently orientated to the limitations on the types of surgery that should be undertaken at the regional hospital.

Recommendations

8. The Deputy Commissioner recommended that the DHB review its process to ensure that all cancer-related cases that proceed to surgery have been discussed at the appropriate multi-disciplinary meetings; develop a policy to ensure that biopsies of retroperitoneal masses are performed only at the main centre hospital; conduct a further review of the scope of surgical procedures to be performed at the regional hospital in light of the findings in this report; review the process for orientation of new surgeons at the regional hospital; and consider having all surgeons working at the regional hospital undertake the Definitive Surgical Trauma Course.

9. The Deputy Commissioner also recommended that the Medical Council consider whether a further review of the surgeon's competence is necessary in light of this report; that the surgeon attend further training on informed consent, the interpretation of CT scans and reports, and communication with colleagues; and that he apologise to the family.

10. The surgeon will be referred to the Director of Proceedings in accordance with section 45(2)(f) of the Health and Disability Commissioner Act 1994 for the purpose of deciding whether any proceedings should be taken.

Complaint and investigation

11. The Health and Disability Commissioner (HDC) received a complaint from Ms B about the services provided to her father, Mr A (dec), by the DHB and Dr C. The following issues were identified for investigation:

- *Whether the DHB provided Mr A with an appropriate standard of care between Month1[2] and Month4 2016.*
- *Whether Dr C provided Mr A with an appropriate standard of care between Month2 and Month4 2016.*

12. This report is the opinion of Kevin Allan, Deputy Commissioner, and is made in accordance with the power delegated to him by the Commissioner.

13. The parties directly involved in the investigation were:

Ms B	Consumer's daughter
District health board	Provider
Dr C	Provider/general surgeon

[2] Relevant months are referred to as Months 1–4.

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14. Also mentioned in this report:

Dr D	Radiologist
Dr E	Radiologist

15. Further information was received from the Coroner.

16. Independent expert advice was obtained from a general surgeon, Dr Elizabeth Dennett, and is included as **Appendix A**.

Information gathered during investigation

Background

17. Mr A, aged in his eighties, was living on his own in his own home. He was independent with his cares and still driving. He had a history of atrial fibrillation,[3] hypertension,[4] and previous asbestos exposure, and was an ex-smoker. Previously he had had an open cholecystectomy.[5]

Discovery of abdominal mass

18. An appointment had been made for Mr A to be seen at the Respiratory Clinic at the main centre hospital (Hospital 2). Prior to the clinic appointment, Mr A underwent a chest X-ray, chest CT scan, and a bronchoscopy.[6] The CT scan included the upper abdomen, and a mass was noted, so it was advised that he undergo a further abdominal CT scan.

19. At the Hospital 2 Respiratory Clinic appointment on 26 Month1, Mr A reported having had slight shortness of breath over the previous few months when walking up hills or stairs, but no shortness of breath at night, and no cough or chest pain. He had not had any recent weight loss.

20. The bronchial brushing[7] of Mr A's right upper lung lobe was negative for tumour cells, and the indications were that a primary lung cancer could be ruled out at that stage. Mr A underwent an abdominal CT scan on 10 Month2. The scan identified a 7x6x8cm mass in the retroperitoneum[8] between the aorta and the superior mesenteric artery (SMA).

21. On 11 Month2, Mr A's case was discussed at the Hospital 2 Respiratory Medicine chest conference, and a decision was made to image his chest again in three months' time. In

[3] An irregular, often rapid heart rate.
[4] High blood pressure.
[5] Removal of the gallbladder.
[6] Examination of the airways.
[7] Collection of cells for histological examination.
[8] The area outside or behind the tissue that lines the abdominal wall and covers most of the organs in the abdomen.

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addition, it was noted: "In view of the significant mesenteric lymphadenopathy[9] he requires referral to the general surgical team for consideration of a laparoscopic core biopsy of this lesion."

Referral to General Surgery

22. On 11 Month2, a respiratory registrar wrote a referral to the General Surgery team at Hospital 2. The referral states that the chest conference felt that Mr A possibly required a laparoscopic core biopsy of his mesenteric lymphadenopathy as the mass would not be accessible under CT or ultrasound guidance.[10] The referral concludes: "[W]e would be grateful of your review of Mr A's case and assistance with gaining a histological diagnosis of his mesenteric lymphadenopathy please." The DHB told HDC that it believes that the referral made clear what was expected of the General Surgery service. In response to the provisional opinion, Dr C said that the referral was sent to the General Surgery team at Hospital 2, and he understood that any referral to Hospital 1 would have already been coordinated by the triaging general surgeon.

23. On 12 Month2, the respiratory registrar saw Mr A in the clinic to discuss the conclusions of the chest conference and the further management plans.

24. The referral was redirected to Hospital 1. The DHB stated that the referral co-ordination centre sends patients who live locally to Hospital 1 for triaging for outpatient surgery or specific surgical operations. The DHB said that patients are seen in Hospital 1 by either Hospital 1 general surgeons or visiting surgeons from Hospital 2, and that the referral, triage, and decision-making process are standard practice for the DHB, as the system is designed to support people in the local district to receive their assessment and/or surgery closer to home rather than in Hospital 2. However, the DHB noted that this process does not mean that ongoing treatment must occur at Hospital 1.

25. In response to the provisional opinion, Dr C said that he was "left with the impression [that the referral had] been reviewed by a triaging surgeon and then redirected as something within the realms of [Hospital 1]". He stated that the redirection to Hospital 1 without notification or agreement between the respiratory multi-disciplinary team meeting (MDM) and General Surgery was an administrative booking error. He said that if he had been notified that it was a non-reviewed referral he would have returned it to the General Surgery team. He stated: "One of the key difficulties with this case was that the referral was sent based on a residential address without triaging from the general surgical department as the chest MDM had anticipated."

26. With regard to why the referral was sent directly to General Surgery, rather than to the Upper Gastrointestinal MDM, the DHB said that it had been discussed and agreed at the Respiratory Medicine chest conference as an appropriate course of action. If the specialist surgical view was that further work-up was necessary, including referral to the Upper Gastrointestinal MDM, then subsequent referrals would be made based on the general

[9] Inflammation of the lymph nodes affecting the membrane that connects the bowel to the abdominal wall (mesentery).
[10] Use of imaging to determine exact placement of a needle when performing a biopsy.

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surgeon's opinion and advice. The DHB said that the business rule for patients domiciled at, or close to, Hospital 1 is for patient referrals to be sent to Hospital 1 for wait listing to be seen by a specialist.

27. Mr A's First Specialist Assessment (FSA) was given a Priority 1 rating — to be seen urgently. His referral was forwarded to Hospital 1 booking services for Mr A to be seen by a Hospital 1-based general surgeon. The DHB stated:

> "As is for all referrals, referrals are made for 'consideration' and it is at this specialist assessment that the surgeon must decide what to do based on all the available information, and seek further information if required or if relevant."

Review by Dr C — 2 Month3

28. On 2 Month3, general surgeon Dr C saw Mr A at Hospital 1 in the surgical outpatients' clinic. Dr C told HDC that he was aware that Mr A had been seen by local physicians in Month1 because of diarrhoea on a background of longstanding constipation. Dr C said that on 2 Month3, Mr A denied having problems with ongoing diarrhoea. Dr C stated that he examined Mr A clinically for further tumour deposits in his neck, axilla, abdomen, and inguinal regions, and the findings were negative. However, Dr C did not record having performed such an examination.

29. In Dr C's subsequent reporting letter to Mr A's GP and the DHB respiratory physician, he stated that Mr A's abdomen was soft, non-tender, and there was no guarding or peritonism. He said that Mr A had had a normal bowel motion that morning, had no kidney or bladder symptoms, and there was no palpable mass in his abdomen.

30. Dr C said that he told Mr A that it appeared that there was a large mesenteric mass between the aorta and the superior mesenteric artery. Dr C documented in his reporting letter that the chest conference had asked him to "get some histology samples from this mesenteric mass prior to the initiation of oncological treatment". The letter states:

> "We had a long discussion about this finding and in the end we all concluded to go ahead with a diagnostic laparoscopy +/- proceed. He is aware of the most common side effects of this procedure like bleeding, infection, bowel damage, damage to other organs, conversion to an open operation and he is happy to proceed."

31. Dr C noted that one week prior to the surgery, Mr A's current warfarin[11] medication needed to be stopped and converted to heparin[12] injections.

32. Ms B told the Coroner that she was present at the consultation, and that Dr C said that he had been asked to biopsy "that bugger" in Mr A's abdomen, which was related to his lung cancer. Ms B stated that she told Dr C that the bronchoscopy results were negative for

[11] An anticoagulant (blood thinner) medication used to prevent blood clots.
[12] An anticoagulant medication.

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cancer cells, and that the abdominal scan showed enlarged lymph nodes but not a tumour. She said that Dr C reiterated that the CT scan showed a "10cm mass", not lymph nodes.

33. In response to the provisional opinion, Dr C said that he told Ms B that there was a 10cm mass in Mr A's abdomen, and that until proven otherwise the mass could be a malignancy related to his lung condition or a secondary tumour unrelated to it. Dr C stated that he was relying on the radiology report from 13 Month2 that mentions a large mesenteric root mass. He said that the amendment to the report referring to "further enlarged lymph nodes" was not available at that time.

34. Ms B stated that there was a discussion about the prognosis, and her father said that in light of the risks, he did not want any "heroic measures" if things did not go well. He said that he did not want his life prolonged if he would have no quality of life. Ms B said that when she asked whether the procedure could be done at Hospital 2 so that her father could stay with her while he recovered, Dr C said that this would mean a wait of at least another three months. She said that her father agreed to have the procedure at Hospital 1 because he did not want to wait for three months. In response to the provisional opinion, Dr C said that he did not provide specific timeframes during the consultation.

First surgery

35. Mr A presented for surgery on 4 Month4. The operation report completed by Dr C states that the initial approach was laparoscopic, and that multiple adhesions between the omentum [13] and the anterior abdominal wall, which had resulted from the open cholecystectomy many years ago, were released. In response to the provisional opinion, Dr C stated that the adhesions were minimal and not a contraindication. The report also states:

> "[T]he intensive search for superficial tissue sample was negative; I was forced to lift the omentum and part of the small bowel upwards to get to the bigger mesentery mass between aorta and mesenteric artery."

36. The report records that a longitudinal incision of 5cm over the mass and the retroperitoneal tissue was separated, and states:

> "After 2–3cm deep incision I could not get down to the presumed abdominal mass and due to the poor visibility and deepness I decided to convert this operation to an open procedure and reopening his old midline incision between xiphoid[14] and umbilicus."

37. In response to the provisional opinion, Dr C stated that the anaesthetist raised no concerns when the open surgery was commenced.

38. The report states that the retroperitoneal incision reached deep down into the tumour mass, which looked black and dark blue and more fluid than solid. The report notes:

[13] A sheet of fat that is covered by peritoneum (the membrane that lines the abdominal cavity and covers most of the abdominal organs).
[14] The lower part of the breastbone.

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> "It had an intact capsule around it and so I decided not to incise this intact capsule in order not to spill liquid tumour masses into the abdomen. The incision was extended to around 8cm and the soft tissue mass with an intact capsule was easily retrieved."

39. Dr C told the Coroner:

> "The retroperitoneum was full of an unknown tumour with tendency to invade neighbouring organs. Therefore, under the impression of this highly vascularized tumour of unknown histology and dignity, I decided to abort the idea of an incisional biopsy."

40. The report states that there was complete haemostasis,[15] and the postoperative instructions include that Mr A could be discharged the following day.

Transfer to PACU

41. The operation was completed at around midday, and Mr A was transferred to the Post-Anaesthesia Care Unit (PACU). Dr C subsequently reported to the Coroner that, two hours later, he was informed by the recovery nurse that Mr A was clammy and showed signs of having an intra-abdominal bleed. A complete blood count showed that Mr A's haemoglobin level had dropped from 125 to 95. Mr A was returned to the theatre and a second operation was undertaken.

Second operation

42. At the start of this operation, a request was made to Hospital 2 for Mr A to be retrieved and transferred to Hospital 2's Intensive Care Unit (ICU).

43. During the operation, Dr C was assisted by another surgeon. Dr C stated that he shared the decision-making with the other surgeon, and that during the operation he discussed his findings with the on-call general surgeon at Hospital 2 and "he confirmed [their] surgical plans".

44. Mr A's abdomen was found to be filled with blood. Dr C removed the blood clots and performed an initial washout, and Mr A's abdomen was packed with swabs in order to isolate the bleeding area. Mr A's abdomen was inspected for a source of the bleeding, and when none was found the original operating site was inspected.

45. Dr C found that the previous enucleation[16] site at the lower pole of the tumour mass was bleeding and, in addition, there was bleeding from the horizontal duodenum[17] into the proximal jejunum.[18] The laceration was repaired, and a duodenal-jejunal bypass was performed. Dr C told the Coroner:

[15] Stoppage of bleeding.
[16] Removal.
[17] The first part of the small intestine.
[18] The middle segment of the small intestine.

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> "A blue discoloration in the distal part of the small bowel was left alone for a second revision in two days' time. After the insertion of two drains, the abdomen was closed. The patient was left in the operating theatre for further observation."

46. The second operation took nearly four hours. Mr A had been administered 10 units of blood before the end of the second operation, and was then administered another 15 units of blood within 39 minutes of completion of the second operation.

47. Dr C said that he spoke to Mr A's family after the second operation, and explained that Mr A had lost a significant amount of blood owing to the invasive tumour in the duodenum. Dr C said that he explained that the situation was barely survivable, and the intention was to transfer Mr A to Hospital 2 as soon as possible.

48. Dr C told HDC that he informed Mr A's family that "[i]f the correct radiologic diagnosis and infiltration of the duodenum would have been known to [him] prior to [Mr A's] operation, indication for surgery would never have been made".

Third operation

49. A retrieval team was dispatched to Hospital 1, and arrived at around 8pm. At that time, it was thought that Mr A was too unstable to be moved.

50. After a discussion between Dr C and a Hospital 2 ICU consultant, it was decided to attempt to stabilise Mr A by packing his abdomen before he was transferred to the Hospital 2 ICU.

51. At around 8pm, Mr A was returned to theatre. The operation took 22 minutes and was completed at around 8.47pm. Mr A was administered another eight units of blood during the procedure. When he was transferred to the transport trolley, he became more haemodynamically unstable,[19] and was administered further blood.

52. The ICU consultant decided to transfer Mr A to Hospital 2 ICU. In the helicopter, Mr A's blood pressure dropped to a systolic pressure in the 40s. After treatment, his blood pressure improved to over 60, and was maintained throughout the rest of the flight.

53. Mr A arrived at the ICU at around 10.20pm. A family meeting took place, and the records state that the surgeons felt that further surgical intervention was unlikely to change the outcome. Mr A died at 12.35am.

Further information: Dr C

54. Dr C stated that when he first reviewed the CT images and referral from the Respiratory Medicine chest conference, he had been working at Hospital 1 for nine days.[20] He said that his understanding was that if a case had been referred to Hospital 1 through a multi-disciplinary team meeting (MDM), it would not be referred to another MDM, and also that

[19] Unstable blood pressure.
[20] The DHB told HDC that Dr C was employed at the DHB from 2011 to 2014 as a surgical registrar. He had been employed as a general surgeon at Hospital 1 for nine days prior to this operation.

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the case would have been assessed by an anaesthetist and reviewed by a surgeon prior to referral to Hospital 1.

55. Dr C said that the CT scans did not show the massive tumour invasion into the duodenum, or the haematoma[21] that led to the bleeding.

56. Dr C stated that it was a team decision to perform the procedure at Hospital 1. He said that there were potential anaesthetic operative risks, but the anaesthetic assessment and surgical referral were performed at Hospital 2, and Mr A was assessed as appropriate for the operative procedure at Hospital 1.

57. Dr C stated that he reviewed the CT scans and did not rely solely on the CT reports. He said that he understood preoperatively that it was unlikely to be a lymph node tumour, and incorporated that knowledge into his planning for the procedure. He stated that in future he will discuss any queries about CT scan reports with the radiologists, particularly interventional radiologists, or specialist gastrointestinal radiologists. He said that if he were to come across a similar situation in the future, where the presentation had not been anticipated by the CT scans or Upper Gastrointestinal MDM, he might close the operative site without attempting enucleation.

Coronial autopsy report

58. The coronial autopsy report states that the cause of death was uncontrollable blood loss as a complication of surgery, and that the site of bleeding was unable to be identified but was in the region of the mesenteric root[22] and the inferior vena cava.[23] The report states that there was haematoma about the mesentery root and inferior vena cava region and there was no vessel wall defect identified. The report notes:

> "[T]he [Hospital 2] histology report of the resected tissue shows features of a neuroendocrine tumour[24] that is malignant with evidence of lymph node spread. Interestingly this tumour was noted to be very vascular."

Radiology report

59. The DHB told HDC that its software audit reports indicate that Dr C viewed the CT scans on 19 Month2, 2 Month3, and 4 Month4. In response to the provisional opinion, Dr C said that he also viewed the films on 9 Month3.

60. The report issued by radiologist Dr D on 13 Month2 notes an impression of a "[l]arge mesenteric root mass, histological confirmation recommended". It describes a "large heterogeneous mass measuring up to 7cm by 6cm by 8cm identified with close relation to small bowel loops" and states that the "differentials include GIST[25] and lymphoma".

[21] A localised swelling filled with blood.
[22] The point where the mesentery attaches to the posterior abdominal wall.
[23] A large vein that carries deoxygenated blood from the lower and middle body to the heart.
[24] A cancer that forms in cells that interact with the nervous system or in glands that produce hormones.
[25] Gastrointestinal Stromal Tumour (GIST) — an uncommon cancer that starts in the gastrointestinal tract.

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61. On 8 Month3, Dr D amended the report with the findings: "Mesenteric root likely lymph node conglomerate measuring up to 7cm by 6cm by 8cm identified with further mesenteric lymph nodes in the vicinity measuring up to 19mm." The DHB stated that this represented "a somewhat subtle alteration of the report" from the original, the main difference being the raised possibility that there might be some enlarged additional lymph nodes around the primary mass. However, there was no change to the range of differential diagnoses given in the report, although in practice, raising the possibility of associated large lymph nodes around the main mass would make a GIST tumour less likely.

62. The DHB stated that the amended report was available well before the day of surgery. The DHB told HDC that the scans were reviewed retrospectively by radiologist Dr E, who confirmed that some of the findings at surgery and autopsy can be seen on the scan, and there was nothing materially incorrect in the initial report, as the description of the mass as being in the root of the mesentery and closely related to bowel loops was correct.

63. In response to the provisional opinion, Dr C disagreed that Dr E's rereading of the report showed nothing materially different and noted that Dr E would have commented on several matters, including "the close and tricky location in the root of the small bowel mesentery, D3/4 plastered and inseparable from the mass and hyper vascular and necrotic component, likely neuro-endocrine lesion".

The DHB — further information

64. The DHB provided HDC with the orientation planning template and the additional administration information provided to Dr C. It also supplied Dr C's orientation schedule. The orientation took place from 9–13 Month2. It said that Dr C exited the employ of the DHB in 2019.

65. The DHB stated that if a biopsy of a mesenteric mass is required, careful decision-making is necessary. The surgeon must personally review and interpret the images, and have a clear mental image of the relation of the mass to the associated structures. It stated that final review of scans and reports would always be undertaken on the day of the procedure, and many surgeons would have the films up on the viewer during the procedure. The DHB stated: "As such [the DHB] is surprised that [Dr C] wasn't aware of the amended report."

66. The DHB noted that review of the CT scan films indicated that no part of the mass would have been easily approached laparoscopically, as it was completely "covered by small bowel vasculature". In addition, Mr A had had a previous laparotomy. The DHB stated: "[I]t should have been no surprise to [Dr C] that the tumour was not easily approached with the laparoscope."

67. The DHB stated that it is potentially risky to dissect deep into the retroperitoneum to find accessible tumour for biopsy, because the retroperitoneum is a relatively shallow structure, and "2–3cm" of dissection indicates a substantial depth. It said that it is clear from the images that the mass was not resectable, and that no particular section of the mass looked as if it would be able to be enucleated. The DHB noted: "[I]t is almost never appropriate to

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try and remove a large part of such a mass, as this will almost always invite haemorrhage or damage to surrounding structures."

68. The DHB stated:

> "[The DHB] considers that the procedure should either have been abandoned or converted to [an open procedure] when it was apparent laparoscopically (without opening into the retroperitoneum) that the tumour was not visible."

69. The DHB said that the combination of Mr A's age and co-morbidities, combined with the more extensive procedure undertaken by Dr C, meant that Mr A was far more likely to require extensive supportive care than if only a small biopsy had been taken. The DHB stated that Hospital 1 is not equipped to deal with this type of case.

70. The DHB said that if the biopsy had been performed at Hospital 2, it is likely that it would have been done within a period of 4–6 weeks.

71. With regard to transferring Mr A from Hospital 1 to Hospital 2, the DHB stated that Dr C contacted the on-call general surgeon at Hospital 2, who accepted transfer of the case on clinical grounds. The general surgeon was not aware of the nature of any preoperative discussions between Dr C and Mr A's family regarding limits on intervention or "heroic measures".

72. The DHB stated that biopsies of retroperitoneal masses are now performed only at Hospital 2. It said that all cancer-related cases in the DHB that proceed to surgery now have a checklist confirming that the case has been discussed at the appropriate multi-disciplinary meeting.

73. The DHB said that it has formally reviewed the scope of surgical procedures to be performed at Hospital 1, as well as the surgical cases where the patient will remain at Hospital 1 postoperatively over a weekend. The CT scan capability at Hospital 1 has been upgraded substantially as part of a planned replacement programme.

Responses to provisional opinion

Ms B

74. Ms B stated that given Dr C's experience as a surgeon, he should have been aware that he should not attempt the surgery on her father at Hospital 1. She said that Dr C was fully aware that her father wanted the least intervention possible (as this was discussed with the DHB team and Dr C) and did not want surgical intervention.

The DHB

75. The DHB said that Dr C had previously worked at Hospital 2 for approximately two years as a registrar. This role involved being on call and regularly taking referrals from Hospital 1, together with attendance at MDMs where Hospital 1 cases were reviewed, so Dr C would have been aware of the cohort and limitations of patient care at Hospital 1. The DHB stated that its surgical and related staff are aware that Hospital 1 does not manage surgical trauma,

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complex surgery, or those patients deemed to have a high anaesthetic or surgical risk. All such cases are transferred/referred to Hospital 2 for management.

76. The DHB said that Dr C was aware that the MDM provides a recommendation based on the available information but that the primary clinician must then consider the appropriateness of the recommendation. Mr A's referral was not forwarded to Dr C with a specific request for him to do the surgery.

77. The DHB stated that the following factors should be considered at the initial consultation of any patient being considered for surgical intervention:

- The patient's age and current level of function;
- The patient's co-morbidities;
- The risk of the procedure versus the expected benefit;
- The expertise and experience of the assessing surgeon;
- The suitability of surgery at the local facility;
- Whether transfer to tertiary care or a specialist centre should be considered; and
- Whether non-operative or palliative management may be more appropriate.

78. The DHB commented that it is not specifically within an anaesthetist's skill set to determine whether it is appropriate to perform a surgical procedure at Hospital 1, and this is best determined by the evaluating surgeon. The DHB suggested that "most anaesthetists would only have a minimal idea as to what 'a retroperitoneal biopsy/surgery' entails and its potential risks, with their focus being mainly on the potential anaesthetic risks".

79. The DHB said that it has moved to central triaging, with all surgical referrals to the DHB being triaged by two general surgeons based at Hospital 2, which allows greater standardisation of management, and potentially easier access to opinions by interventional radiologists and collegial opinions.

80. In relation to the recommendation in the provisional opinion regarding development of a policy that biopsies of retroperitoneal masses are performed only at Hospital 2, the DHB said that a policy cannot supplant good judgement, and therefore cannot account for every situation. A surgeon would determine the level of appropriateness without the need for a specific policy. The DHB said: "We strongly believe in this instance, had a policy been in place to specifically exclude 'retroperitoneal surgery' it would likely not have altered the outcome in regard to decision making."

81. The DHB said that currently Hospital 1 does not manage cases of surgical trauma, complex surgery, or those patients deemed to have a high anaesthetic or surgical risk. If such patients present acutely, then they are referred and transferred to Hospital 2. All elective surgery is "surgically triaged" in tandem with full pre-anaesthetic work-ups by a specialist anaesthetist.

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82. With regard to the orientation of new surgeons at Hospital 1, the DHB said that there will be no "new" resident surgeons appointed to Hospital 1, and surgical services will be provided by Hospital 2 surgeons visiting on an ambulatory basis. Visiting surgeons will be made fully aware of the capability of services at Hospital 1. Surgery will be limited to day stay and overnight stay cases unless social circumstances mandate a longer stay.

Dr C

83. Dr C stated that he "wishes to surrender his annual practicing certificate and does not intend to practice again as a doctor" and so there is no public interest in referring him to the Director of Proceedings.

84. Dr C said that he was in contact with the DHB ICU during and after the last two operations. He said that the second surgery was conducted in conjunction with another surgeon, and so his appreciation and understanding of the situation was not "poor".

85. Dr C said that he reviewed the amended radiology report on 9 Month3, and reviewed the CT scans multiple times, but he noted that he is not a radiologist, and neither the original nor the amended report was as extensive as the report later provided by Dr E.

86. Dr C stated that the retroperitoneal tumour was not infiltrating the peritoneum. The superior mesenteric artery was covering the tumour on top but the tumour did not infiltrate the small bowel mesentery, which was almost freely moveable into the upper abdomen. He said that the discovery of a black and blue necrotic mass was unexpected, and bleeding was not apparent at any stage during the first operation.

87. Dr C noted that Mr A's previous open cholecystectomy was in 1981. He said that he considered Mr A's age and co-morbidities by asking for an anaesthetic assessment.

88. Dr C accepted in hindsight that he should not have operated on Mr A at Hospital 1, and that the operation should have been abandoned when the search for a superficial tissue sample failed, but he does not accept that he undertook a blind dissection.

Opinion: Dr C — breach

89. Mr A underwent a CT scan of his chest and abdomen that identified the presence of a large mesenteric root mass. The Hospital 2 Respiratory Medicine chest conference decided that Mr A possibly required a laparoscopic core biopsy of the mesenteric lymphadenopathy, as the mass would not be accessible under CT or ultrasound guidance. It was decided that Mr A should be referred to the General Surgery Department for consideration of a laparoscopic biopsy of the abdominal mass.

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Preoperative planning

90. The referral was sent to Hospital 1, and on 2 Month3 Mr A was reviewed by Dr C, who booked Mr A for a "diagnostic laparoscopy +/- proceed" to be performed at Hospital 1 on 4 Month4.

91. The mass was 7 x 6 x 8cm and lay in the retroperitoneum between the aorta and the SMA. The first scan report was issued by Dr D on 13 Month2, and states that there was a "large heterogeneous mass measuring up to 7cm by 6cm by 8cm identified with close relation to small bowel loops". The differential diagnoses stated include GIST and lymphoma. Dr D amended the report on 8 Month3 to read: "Mesenteric root likely lymph node conglomerate measuring up to 7cm by 6cm by 8cm identified with further lymph nodes in the vicinity measuring up to 19mm."

92. Dr C told Mr A's family subsequently that if the correct radiological diagnosis and infiltration of the duodenum had been known to him prior to the operation, indications for surgery would never have been made. Dr C considers that there were significant differences between Dr E's subsequent re-read of the scan and the original reports.

93. The DHB stated that the amended report was available (on 8 Month3) well before the day of surgery (4 Month4). Dr C said that he reviewed the CT scan on 9 Month3. The DHB's IT records show that Dr C also viewed the scan on the day of surgery. Further, in any event, Dr D's amendment represented a somewhat subtle alteration of the report from the original, the main difference being an increased possibility that there might be some enlarged additional lymph nodes around the primary mass. However, there was no change to the range of differential diagnoses in the report, although the possibility of associated large lymph nodes around the main mass would make a GIST tumour less likely. Following his review of Mr A on 2 Month3, Dr C stated in his reporting letter to Mr A's GP and the DHB respiratory physician that the chest conference had asked for histological samples prior to starting oncological treatment. However, the referral clearly states that the lung lesion was negative for tumour cells, and does not mention anywhere that Mr A was about to start oncological treatment. In response to the provisional opinion, Dr C stated that the MDM had not completely excluded malignancy, and a surveillance CT scan was planned. He said that the histological samples were required to confirm or preclude cancer.

94. My expert adviser, general surgeon Dr Elizabeth Dennett, advised that there were multiple differential diagnoses, including lymphoma, neuro-endocrine tumour, phaeochromocytoma/ paraganglionoma, pancreas tumour, or duodenal tumour. She stated that it was a moderate departure from good practice for Dr C not to consider any differential diagnoses. Dr Dennett advised that in light of these possibilities, a number of tests should have been undertaken prior to surgery, for example:

> "[T]he third part of the duodenum is (on the CT) intimately associated with the mass, in many coronal views it is impossible to separate them. Based on the CT images an upper GI endoscopy +/- endoscopic ultrasound should have been undertaken. [Dr C] as the operating surgeon should have reviewed all of the images of the CT scan and seen this,

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> if he wasn't sure given the position of the mass he should have reviewed all the images with a radiologist."

95. In response to the provisional opinion, Dr C stated that the differential diagnoses identified by Dr Dennett were evaluated against a diagnostic laparoscopy, which he considered was the "superior investigation".

96. Dr Dennett advised that the CT scan shows that the superior mesenteric artery was stretched over the top of the mass, the anatomy of some of the most important vessels in the abdomen was distorted, and other important vessels could not be seen. She stated that an appropriate work-up for surgery should have included angiography to map out the important vessels accurately and to help to make a decision about the best approach to the mass for a biopsy. She advised:

> "The lack of any work-up/further investigation particularly endoscopy (best practice with ultrasound) and angiography would be viewed poorly by my peers. It is a substantial departure from good practice."

97. In response to the provisional opinion, Dr C stated that endoscopy was excluded by "the presenting radiology at the MDM meeting which was why he did not pursue any further endoscopies".

98. Dr Dennett stated that if Dr C had read the scan correctly before he operated, he would have been aware that the tumour was highly vascular, contained necrotic components, and was inseparable from the duodenum. She said that if Dr C was not able to read the scan, he should have gone over it with a radiologist. I accept this advice. Dr C told HDC that he will do so if he has queries about a CT scan report in the future.

99. Mr A's past medical history included an open cholecystectomy in 1981. Dr Dennett stated:

> "[Dr C] [was] aware that the mass [was] between the aorta and the [superior mesenteric artery] — this is the retroperitoneum. Despite this he [chose] an anterior laparoscopic approach to obtain a biopsy which he should have known would be complicated by the fact the patient ha[d] had a previous open cholecystectomy with a midline scar."

100. In response to the provisional opinion, Dr C stated that the adhesions were minimal and not a contraindication. However, he also told the Coroner that "[t]he initial laparoscopy showed multiple adhesions between [the] omentum and the anterior abdominal wall". He said that he chose an anterior laparoscopic approach to exclude the possibility of intraperitoneal deposits.

101. Dr Dennett said that the surgery should not have begun via an anterior laparoscopic approach, given the CT images and Mr A's history of previous open abdominal surgery. Dr Dennett advised that choosing an anterior laparoscopic approach to obtain the biopsy was a moderate departure from good practice.

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102. Dr Dennett advised that had the operation been to obtain a biopsy of an easily accessible intraperitoneal mass, there would have been no reason for it not to be performed at Hospital 1. However, she considers that Dr C should never have undertaken this particular operation at Hospital 1, as it was a major procedure in a critical area that usually is operated on only by surgeons with specialist training. She stated that there was no support in case of a complication, Mr A was not worked up adequately prior to the surgery, and the anatomy was not fully appreciated. I accept this advice and consider that Dr C should have undertaken adequate preparations prior to the surgery, and recognised that the particular surgery should not have been undertaken at Hospital 1. Dr C should instead have referred Mr A to Hospital 2 for his surgery.

First operation 4 Month4

103. Mr A presented for surgery on 4 Month4. Dr C commenced a laparoscopic procedure and released multiple adhesions between the omentum and the anterior abdominal wall. When Dr C was unable to find a superficial tissue sample, he lifted the omentum and part of the small bowel upwards to get to the bigger mesentery mass between the aorta and mesenteric artery. He made a longitudinal incision of 5cm over the mass, and the retroperitoneal tissue was separated. Dr C stated in the operation report:

> "After 2–3cm deep incision I could not get down to the presumed abdominal mass and due to the poor visibility and deepness I decided to convert this operation to an open procedure and reopen his old midline incision between xiphoid and umbilicus."

104. Dr Dennett advised that the operation should have been abandoned when the search for a superficial tissue sample failed. She said that Dr C's description of his approach to the mass contains very little detail about what was actually done. She noted that Dr C's operation report states that he made a 5cm incision over the mass and then a dissection of 2–3cm into an area where there is not usually that amount of depth, and could not find anything. Dr Dennett stated: "This indicates that the incision has not been made where described and that a substantial amount of 'blind' dissection had taken place." She advised:

> "If [Dr C] had made his initial incision over the mass, based on the CT images he should have come straight down on the mass with minimal dissection. Overall the description of the laparoscopic part of the operation note gives the impression [Dr C] has dissected his way through small bowel mesentery to get to the retroperitoneum rather than approaching it in an appropriate and pre-planned manner. The description of the open part of the operation does not correct this impression. It seems the surgical anatomy was not understood and there was no appreciation of how the mass may have distorted it."

105. In response to the provisional opinion, Dr C stated that he did not undertake blind surgery and did not dissect through the small bowel mesentery, and that had he done so, the pathologist would have identified a defect in the central bowel mesentery. As stated, Dr C's description in the operation report of his approach to the mass contains very little detail about what was actually done and, consequently, I am unable to make factual findings about the detail of the surgery.

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106. During the second operation, Dr C found a laceration in the duodenum, and he suggested in the operation note that it may have been caused by infiltration of the tumour. Dr Dennett stated that the laceration was due to the first operation, irrespective of whether or not the duodenum was involved with the tumour. She said that the final pathology report of the excised tumour showed that small bowel was attached to it, which indicated that the mass was not encapsulated as Dr C claimed. She said that the finding of a duodenal laceration in light of Dr C's claim that the tumour was encapsulated, and his failure to recognise the duodenal injury, amounted to a substantial departure from good practice.

107. In response to the provisional opinion, Dr C stated that he does not accept that there was a failure to recognise a duodenal injury, and he remains of the view that the tumour was encapsulated. He said that at the time of the second operation, the exact specificity of the tumour was unknown. He stated: "Surgical manipulation during the first or second operation could have also played a role while trying to stop the diffuse bleeding." With regard to converting to open surgery, Dr Dennett stated that this was necessary because it would have been negligent for Dr C to abandon the operation after the laparoscopic attempt without first checking for injury or damage following his deep dissection into the retroperitoneum with poor visibility.

108. Dr Dennett noted that although the operation report states that there was complete haemostasis, this is difficult to accept given the highly vascular nature of the tumour, its position, the way major vessels were stretched over the tumour, and the laparoscopic "blind" dissection.

109. In response to the provisional opinion, Dr C stated that he does not accept that haemostasis was incomplete — he considers that the mass had signs of hypovascularity,[26] and it was removed without lacerating the surrounding vascular structure, and blind dissection did not occur. However, Dr C also told the Coroner: "[As I was] under the impression of this highly vascularized tumour of unknown histology and dignity, I decided to abort the idea of an incisional biopsy."

110. Dr Dennett stated that the postoperative instructions were poor. Given that Mr A had undergone major intra-abdominal surgery, it would have been impossible for him to be ready for discharge the following day. Dr Dennett advised: "Individually many of these points are substantial departures, combined they are more than substantial departures from good practice." I agree. However, I accept that once the initial laparoscopic surgery failed, Dr C was forced to convert to an open procedure.

Second operation

111. Mr A was found to be bleeding, and was returned to the operating theatre. In response to the provisional opinion, Dr C stated that Mr A's mild acidosis at the start of the operation, and his haemoglobin level of 95, were not indicators for damage-control surgery at that time. However, once the operation was underway, bleeding was discovered. Dr C said that the intestinal bleeding required control before the application of abdominal packing, and

[26] Lacking blood vessels.

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after the blood was removed the abdomen was packed with swabs. By that stage, Mr A was unstable, and Dr C made a request to Hospital 2 to transfer him. In response to the provisional opinion, Dr C said that he shared the decision-making with the surgeon who assisted him, and that during the operation he discussed his findings with the on-call general surgeon at Hospital 2, who confirmed the surgical plans. I note that the general surgeon was off site and therefore had less knowledge and control. I remain of the view that Dr C was the responsible clinician.

112. A large blood transfusion was underway.

113. Dr Dennett advised that the second operation should have been a damage-control laparotomy only, and time was wasted that should have been used to get Mr A to Hospital 2. She noted that when Mr A was taken back to theatre, his whole abdomen was inspected for a source of bleeding before the original operating site was inspected. Dr Dennett stated:

> "In the absence of any trauma or similar the obvious source was going to be the operative site. This was time wasting and suggests a reluctance to consider the first operation could be the cause."

114. Dr Dennett considered that it was appropriate to repair the laceration of the duodenum. However, she considers that the duodenal/jejunal bypass was an unnecessary major procedure at that time, and extended the operating time unnecessarily. She stated that the tumour bed should have been packed and nothing more done.

115. Dr C reported that he noted a bluish discolouration of the distal small bowel, which he did not remove. Dr Dennett advised that this was an appropriate decision. However, Dr C's operation note states that this was probably also mediated by tumour infiltration. Dr Dennett advised that if the discolouration had been due to tumour infiltration, it should have been seen during the first operation. She said:

> "I know of no pathophysiological process involving tumour that would have led to small bowel to looking bluish when it was normal looking only a few hours earlier except for ischaemia i.e. the blood supply had been compromised. [Dr C] was looking at ischaemic bowel and the post mortem report confirms this. It is of concern that he could not recognize this but one also gets the impression he did not appreciate the extent of vascular injury/damage that had occurred by this time."

116. In response to the provisional opinion, Dr C said that the bluish discoloration "was mediated by the compromised blood supply in response to the haematoma after the removal of additional duodenal tumour masses. It was not caused by vascular damage and was not apparent in the first operation."

117. Dr Dennett advised that the four-hour-long second operation and the failure to treat the operation as damage control was a moderate departure from good practice. She said that the under-appreciation of the gravity of the situation was a substantial departure from good practice.

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118. Despite Dr C's submissions, I agree with Dr Dennett and remain of the opinion that his appreciation of the situation and his decision-making were both poor, and as a result of the lengthy surgery, Mr A's situation became critical.

Third operation

119. During the third operation, Mr A's abdomen was packed to attempt to stabilise him before he was transferred to Hospital 2 ICU. During that process, Mr A was administered another eight units of blood, and following transfer he required further blood. Dr Dennett advised that the steps taken during the third operation were what should have been done during the second, and that by the time of the third operation, it was too late.

Conclusions

120. Dr Dennett stated that Mr A had a catastrophic haemorrhage following an unnecessary operation in a small hospital that was not designed or supported for the surgery that was performed.

121. Overall, I consider that Dr C's treatment of Mr A was woefully poor in the following ways:

- There was inadequate preoperative work-up and planning. As the operating surgeon, the responsibility lay with Dr C to be sure that Mr A had been worked up appropriately for the correct operation.
- Dr C performed the operation in a small and unsupported centre, and did not abandon the first operation when no intra-peritoneal mass could be found for biopsy. Dr C should have stopped before the situation became irretrievable.
- Dr C did not confine the second operation to a damage-control laparotomy. Dr Dennett advised that Mr A should have had proper abdominal packing, been stabilised, and transferred to Hospital 2.

122. I find that Dr C failed to provide services to Mr A with reasonable care and skill and, accordingly, breached Right 4(1) of the Code.

Opinion: DHB — adverse comment

123. On 11 Month2, a respiratory registrar wrote a referral to the General Surgery team at Hospital 2. The referral states that the chest conference felt that Mr A possibly required a laparoscopic core biopsy of his mesenteric lymphadenopathy, as the mass would not be accessible under CT or ultrasound guidance. The referral concludes: "[W]e would be grateful of your review of Mr A's case and assistance with gaining a histological diagnosis of his mesenteric lymphadenopathy please." There is no record of a decision that the mass would not be amenable to radiological guided biopsy having been made by an interventional radiologist. Dr Dennett noted that the decision appears to have been made before the CT

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was formally reported, and she advised that the decision should have been made by an appropriate specialist.

124. Dr Dennett noted that the referral letter was directed to the Department of General Surgery at Hospital 2. She stated that in order for the referral to be triaged and prioritised appropriately, the exact location of the required biopsy should have been checked and specified.

125. The referral was redirected to Hospital 1. The DHB stated that it sends patients who live in the local area to Hospital 1 for triaging for outpatient or specific surgical operations.

126. The DHB said that it is standard practice for patients who live in the area to be seen by either Hospital 1 general surgeons or visiting surgeons from Hospital 2. However, that does not mean that ongoing treatment must occur at Hospital 1. Dr C stated that his understanding was that if a case had been referred to Hospital 1 through an MDM, it would not be referred to another MDM, and also that the case would have been assessed by an anaesthetist and reviewed by a surgeon prior to referral to Hospital 1. However, there is no reference in the clinical records to those steps having occurred. The DHB said that if the general surgeon's view was that further work-up was necessary, including referral to the Upper Gastrointestinal MDM, then subsequent referrals would be made based on the general surgeon's opinion and advice.

127. At the time of these events, Dr C had been working at Hospital 1 for nine days, although previously he had worked at the DHB for approximately two years as a registrar. The DHB stated that this role involved being on call and regularly taking referrals from Hospital 1, together with attendance at MDMs where Hospital 1 cases were reviewed, so Dr C would have been aware of the cohort and limitations of patient care at Hospital 1. The DHB stated that its surgical and related staff are aware that Hospital 1 does not manage surgical trauma, complex surgery, or those patients deemed to have a high anaesthetic or surgical risk. All such cases are transferred/referred to Hospital 2 for management.

128. I remain of the view that it is concerning that despite this, Dr C appears to have been insufficiently orientated to the limitations on the types of surgery that should be undertaken at Hospital 1.

129. The MDM notes of 11 Month2 state that Mr A was to be referred to the general surgeons for consideration of a laparoscopic core biopsy of the mesenteric adenopathy. The referral letter to the General Surgery Department at Hospital 2 states that the mesenteric adenopathy would not be accessible under CT or ultrasound guidance by the radiologist. Dr Dennett advised that the decision that the mass would not be amenable to radiological guided biopsy appears to have been made before the CT was reported formally. She stated that this was a question that should have been decided by the appropriate specialist, such as an interventional radiologist. I am critical that an interventional radiologist did not make the decision that the mass was not amenable to CT or ultrasound guided biopsy, and that the MDM decided to proceed with a surgical biopsy.

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130. I am also critical that the exact location of the required biopsy was not checked prior to the referral, and that appropriate protocols were not in place regarding the type of surgery that could be performed appropriately at Hospital 1.

131. I note that the DHB has stated that all requests for this type of biopsy must now go to Hospital 2. However, in my view, a policy should be developed to ensure that this occurs.

Recommendations

132. I recommend that within three months of the date of this report, the DHB take the following steps and report back to HDC on the outcome:

a) Review the process to ensure that all cancer-related cases that proceed to surgery have had the checklist completed to confirm that the case has been discussed at the appropriate multi-disciplinary meetings. The DHB responded that currently the only cancer surgery that is scheduled at Hospital 1 is for skin cancer.

b) In light of the expert advice, develop a policy that biopsies of retroperitoneal masses are performed only at Hospital 2.

c) Conduct a further review of the scope of surgical procedures to be performed at Hospital 1, in light of the findings in this report.

d) Review the process for training/orientation of surgeons undertaking operations at Hospital 1, to ensure that they are aware of the limitations on the procedures to be performed there.

e) Consider having all surgeons working at Hospital 1 undertake the Definitive Surgical Trauma Course.

133. The Medical Council of New Zealand has undertaken a competence review of Dr C. I recommend that the Council consider whether a further review is necessary in light of this report.

134. Should Dr C return to medical practice, I recommend that within three months of the date of obtaining his practising certificate, Dr C attend further training on informed consent, the interpretation of CT scans and reports, and communication with colleagues. Dr C is to provide HDC with proof of attendance and the content of the training.

135. I recommend that within three weeks of the date of this report, Dr C apologise in writing to Mr A's family. The apology is to be sent to HDC for forwarding.

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Follow-up actions

136. Dr C will be referred to the Director of Proceedings in accordance with section 45(2)(f) of the Health and Disability Commissioner Act 1994 for the purpose of deciding whether any proceedings should be taken.

137. A copy of this report with details identifying the parties removed, except the expert who advised on this case, will be sent to the Medical Council of New Zealand, and it will be advised of Dr C's name.

138. A copy of this report with details identifying the parties removed, except the expert who advised on this case, will be sent to the Royal Australasian College of Surgeons, the Central Technical Advisory Service, the Accident Compensation Corporation, and the Health Quality & Safety Commission, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Addendum

139. The Director of Proceedings decided to take proceedings against the provider by consent in the Human Rights Review Tribunal. The Tribunal issued a declaration that the provider breached Right 4(1) of the Code by failing to provide services to Mr A with reasonable care and skill.

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Appendix A: Independent advice to the Deputy Commissioner

The following expert advice was obtained from Associate Professor Elizabeth Dennett FRACS, FASCRS:

"I have been asked to provide an expert opinion to the Commissioner on case no. C17HDC00449 and the following is my report.

I have read and followed the Commissioner's guidelines in the preparation of this report.

Professional Credentials of 'expert advisor' relevant to this report:

My name is Elizabeth Rose Dennett and I am a vocationally registered general surgeon employed by the University of Otago (Associate Professor of Surgery) and Capital and Coast District Health Board (Consultant General Surgeon). I hold an MBChB from the University of Otago, awarded in 1990. I hold a fellowship of the Royal Australasian College of Surgeons gained by examination in 2000 and an awarded fellowship of the American Society of Colon and Rectal Surgeons gained in 2012. My practice in Wellington encompasses a range of general surgical conditions. I have been the Chair of the Board in General Surgery (Royal Australasian College of Surgeons) responsible for the training of all General Surgeons in Australasia, I am still a member of the New Zealand Board in General Surgery and I am an examiner in General Surgery for the Fellowship exams of the Royal Australasian College of Surgeons. **I declare no conflict of interest in this case.**

EXPERT ADVICE REQUIRED

The Commissioner has requested of me specifically to address the following issues:

1. Based on the clinical information available to [Dr C] was it a reasonable decision to undertake the proposed surgery at [Hospital 1]?
2. Based on initial intra-operative findings, comment on the appropriateness of [Dr C's] decisions:
   a) To proceed to laparotomy when there was no visible tumour to biopsy at laparoscopy
   b) To proceed to biopsy once the nature and extent of the tumour was evident at laparotomy
   c) To enucleate an accessible part of the tumour rather than perform a less extensive/invasive biopsy procedure
3. Was [Dr C's] management of [Mr A's] care following the initial surgical procedure clinically appropriate?
4. [Dr C's] bottom line of the coroner's report, should [Dr C] have been aware of the diagnosis and comment on [Dr C's] bottom line.

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5. Any other matters you warrant comment in this case.

For each question please advise:

1. What is the standard of care/accepted practice
2. If there has been a departure from the standard of care or accepted practice how significant a departure do you consider this to be?
3. How would it be reviewed by your peers?
4. Recommendations for improvement that may help to prevent a similar occurrence in future

EVIDENCE TO SUPPORT CONCLUSION

I have been furnished with information from the Commissioner's office. Information received includes letters from the patient's representative, surgeon and Executive Director … The coroner's report and the two surgical and one intensive care specialist reports to the coroner. All hospital notes pertaining to [Mr A's] work up and investigations through the respiratory service at [Hospital 2] in … 2016 and his admission and subsequent operations at [Hospital 1] on the 4th [Month4]. After preliminary reading I requested a copy of the abdominal CT scan performed on 10th [Month2] that all the notes previously provided referred to.

TIMELINE OF RELEVANT EVENTS

[Mr A] was initially seen by the respiratory medicine service at [Hospital 2]. He had been seen in clinic on the 26th [Month1] with shortness of breath and wheeziness. His work-up for this had included a chest X-ray, a chest CT scan and bronchoscopy. The CT scan of the chest included the upper abdomen and a mass was noted which led to the formal abdominal CT of 10th [Month2]. With respect to the lungs a lesion had been noted in the upper lobe of the right lung but subsequent investigations had (for now) ruled a primary lung cancer out as the cause. [Mr A] was discussed in the lung multidisciplinary meeting (MDM) 11th [Month2] and a decision was made to further image his chest in 3 months. He was, in addition to be referred to general surgery for consideration of a laparoscopic biopsy of the abdominal mass. A referral to the department of general surgery at [Hospital 2] was made on the same day at the MDM. [Mr A] was seen with his daughter in the chest clinic on the 12th of [Month2] and informed of the plan. [Mr A] was seen in [Hospital 1] on the 2nd of [Month3] and booked for a diagnostic laparoscopy +/- proceed leading to his admission on the 4th of [Month4]. Past medical history included an open cholecystectomy through an upper midline scar, he also had a pacemaker and was on warfarin. The mass identified on the CT was 7x6x8cm and lay in the retroperitoneum between the aorta and the superior mesenteric artery (SMA). Lymphoma or GIST were suggested as possible diagnoses. The approach to obtaining a biopsy was initially laparoscopic but nothing could be found to biopsy so a laparoscopic dissection into the retroperitoneum was started. After a 2–3cm dissection nothing had been found so the operation was converted to an open procedure. After opening the abdomen a large bluish tumour was found that was 'encapsulated' and it was elected

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to remove this. The operation was complete at midday and [Mr A] was transferred to PACU (Post-anaesthesia care unit). Shortly after 2pm it was noted through observations and blood tests that [Mr A] had had a significant post-operative bleed. He was returned to theatre and a second operation was undertaken. At the start of this operation a request was made to [Hospital 2] for a retrieval of the patient, though the retrieval team was not dispatched until approximately 6pm. At this operation a large volume of blood was found in the abdominal cavity, the source was the tumour bed with a lot of 'oozing'. A laceration in the third part of the duodenum was noted, this was repaired and a duodenal-jejunal bypass was performed, it was thought the bleeding was controlled. The operation was complete at approximately 6pm, 10 units of blood had been transfused by this point in time. A retrieval team had been dispatched to [Hospital 1] but on arrival (between 7:30 and 8pm) they were aware that [Mr A] was too unstable to be moved. There was some difficulty in contacting the operating surgeon however sometime after 8pm [Mr A] was returned to theatre to have his abdomen packed, this operation took 22 minutes being complete at 8:47pm. By this time [Mr A] had had another 15 units of blood. [Mr A] was transferred to [Hospital 2]. Unfortunately, upon arrival at [Hospital 2] it became apparent the situation was not retrievable, [Mr A] was in multi-organ failure. The decision was made to withdraw all treatment and he passed away in the early hours of 5th [Month4].

There are multiple points of failure in this case. I will elucidate what I believe are the key factors and then answer any of the specific questions of the commissioner if not already answered in my comments.

Initial referral for biopsy

The MDM notes of 11th [Month2] state [Mr A] is to be referred to the general surgeons for consideration of a laparoscopic core biopsy of mesenteric adenopathy, there is no formal report of the abdominal CT available yet. The referral letter of the same day to the general surgery department at [Hospital 2] states the mesenteric adenopathy would not be accessible under CT or ultrasound guidance by the radiologist, the formal report of the CT scan is still not available.

Was the decision the mass would not be amenable to radiological guided biopsy made by an interventional radiologist?

I have been provided with no evidence that it was conversely, I have no evidence that it wasn't however the decision the mass was not amenable to a radiological biopsy appears to have been made before the CT was formally reported. It may be that an interventional radiologist would say the mass was not amenable to biopsy however if this was not done in future this question should be put to and decided upon by the appropriate specialist(s). I cannot consider this a departure from good practice as I have no information about the decision making that occurred around deciding to go straight for a surgical biopsy other than that was the decision.

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1. The referral of 11th [Month2] was made to the department of general surgery at [Hospital 2]. This is the appropriate place for the referral but somehow it seems to have been redirected/sent to [Hospital 1].

[The DHB's comments] [Hospital 2] were under the impression the initial referral was sent to [Hospital 1] as it would have been more convenient for [Mr A]. The referral letter I was provided with is directed to the department of general surgery at [Hospital 2]. The referral letter does not specify the exact location of the nodal mass requiring biopsy and this is not unusual in a referral letter from a non-surgeon. I have no information about [the DHB's] process for screening/triaging and prioritizing referrals. However, in order to do this appropriately the exact location of the required biopsy should have been checked. I recommend that [Hospital 2] investigate this matter to see how it occurred and to put measures in place to prevent this happening again. I note [the DHB has] said in future all the requests for this type of biopsy must go to [Hospital 2] — the referral for this patient did go to [Hospital 2] so the recommendation made does not mean this won't happen again unless they know why it happened this time.

Surgical review 2nd [Month3]

1. [Dr C's] clinic letter (and repeated in his reports to the coroner)
   a) [Mr A] had been diagnosed with a lung lesion.
   b) 7 x 6 x 8cm lesion between the aorta and superior mesenteric artery (SMA)
   c) Chest conference have asked for histological samples prior to starting oncological treatment

The referral letter to surgery clearly states the lung lesion is negative for tumour cells, there is absolutely no mention anywhere in [Mr A's] notes about starting oncological treatment for anything. [Dr C] is aware the mass is between the aorta and the superior mesenteric artery — this is the retroperitoneum. Despite this he has chosen an anterior laparoscopic approach to obtain a biopsy which he should have known would be complicated by the fact the patient has had a previous open cholecystectomy with a midline scar.

This is a moderate departure from good practice.

2. Lack of any work-up to help establish a diagnosis.

At the time [Mr A] was seen by a surgeon it was known he had a mass between his aorta and SMA. A request had been made to help make a histological diagnosis and a diagnosis may have been possible before any biopsy. Considering where the mass was and what had been reported the differential included but was not limited to:

a) Lymphoma — LDH could have been measured, this is a blood test and is elevated in many lympho-proliferative disorders especially non-Hodgkins lymphoma. Furthermore [Mr A] could have been examined or further imaged to see if there was a more accessible node(s) that could have been biopsied.

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b) Carcinoid (neuro-endocrine tumour) — consideration should have been given to this given the nodal mass at the root of the small bowel mesentery. Measuring chromogranin-A may have helped and would have completely avoided the need for a tissue diagnosis. It is elevated in about 80% of small bowel carcinoids, there is nothing in [Mr A's] history provided that would suggest he would have had a false positive result.

c) Phaeochromocytoma/paraganglionoma — these are less likely on the differential but due to the position of the mass a paraganglionoma cannot be conclusively excluded on the CT scan but it would have been very easy to exclude them with further blood tests (chromogranin A) and urinary tests (catecholaimes).

d) Pancreas tumour — A pancreatic tumour like the tumours of point c is less likely but given the position of the mass measuring Ca19-9 (a blood test) should still have been considered.

e) Duodenal tumour — the third part of the duodenum is (on the CT) intimately associated with the mass, in many coronal views it is impossible to separate them. Based on the CT images an upper GI endoscopy +/- endoscopic ultrasound should have been undertaken. [Dr C] as the operating surgeon should have reviewed all of the images of the CT scan and seen this, if he wasn't sure given the position of the mass he should have reviewed all the images with a radiologist.

3. Lack of any pre-operative planning

The CT scan shows that the SMA is stretched over the top of the mass, it is hard to clearly identify where the middle colic artery runs (a significant branch of the SMA). The relevance of this is that the anatomy of some of the most important vessels in the abdomen is clearly distorted and other important vessels cannot be seen*. There are a number of different ways the mass could have been approached but an appropriate workup for surgery should have included angiography to accurately map out the important vessels and help make a decision about the best approach to the mass for a biopsy. In addition the information that [Mr A] had had a recent admission with a change in bowel habit and epigastric pain seems to have been missed or ignored. In light of the final diagnosis this is pertinent information, the diarrhea he experienced on a background of longstanding constipation was likely due to his tumour, diarrhea is a common symptom.

The lack of any work-up/further investigation particularly endoscopy (best practice with ultrasound) and angiography would be viewed poorly by my peers. It is a substantial departure from good practice.

***** *I requested a copy of the CT scan as there is conflict in the information provided as to what the CT reports mean/how they should be interpreted. I viewed the CT scan after reading the two reports provided (13th [Month2] and 8th [Month3]) but before I was aware there was an email from [Dr E] (specialist GI radiologist) to [Dr C] also (informally) reporting the CT. I used Horos, a free DICOM viewer on an iMAC — this has a high definition screen but it is not radiological quality. I had no arterial phase images only*

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portal therefore I make no comment about knowing whether this was a highly vascular lesion or not. However, it is quite clear that: particularly in the coronal and sagittal images the third part of the duodenum cannot be separated from the mass, in all planes the SMA is stretched over the top of the mass, the mass is heterogeneous suggesting necrosis and it is in the retroperitoneum.

First operation 4th [Month4]

If the operation had simply been to obtain a biopsy of an easily accessible intraperitoneal mass there is no reason that the operation could not have been carried out at [Hospital 1]. However, this was not the case and with respect to the first operation:

a) It should never have been undertaken at [Hospital 1] — a major procedure in a critical area that is usually only accessed/operated in by surgeons with specialist training e.g. hepatobiliary, upper GI, sarcoma and vascular surgeons was undertaken. There was no support in case of a complication e.g. vascular surgery, blood products, intensive care. The patient was inadequately worked-up prior to surgery, the anatomy was not appreciated.

b) It should not have been started via an anterior laparoscopic approach given the CT images and [Mr A's] history of previous open abdominal surgery.

c) It is not clear why a search for superficial tissue was undertaken as there was no evidence that there would be any to be found. However, knowing the mass was in the retroperitoneum and [Hospital 1] is not adequately supported for major surgery, the operation should have been abandoned when the 'intensive search' for a superficial tissue sample failed.

d) [Dr C's] description of his approach to the mass provides very little information about what was actually done. For example, how did he laparoscopically dissect the retroperitoneum? Blunt dissection or sharp dissection or with an energy device? With one instrument or two? Where were the laparoscopic ports placed? How did he hold up the small bowel? Was there any bleeding? Why was visibility poor? It is not at all clear whether the approach was supracolic, infracolic or through the lesser sac or how the major vessels i.e. SMA +/- middle colic arteries were identified and protected. There is the same lack of information for the open part of the operation.

   If the small bowel and colon mesentery had been lifted up and out of the way correctly the mass should have been obvious as a bulge in the retroperitoneum. [Dr C] states he made a 5cm incision over the mass but then undertakes a dissection of 2–3 cm into an area where there isn't usually that amount of depth and can't find anything. This indicates that the incision has not been made where described and that a substantial amount of 'blind' dissection had taken place. [Dr C] himself states that visibility was poor.

   If [Dr C] had made his initial incision over the mass, based on the CT images he should have come straight down on the mass with minimal dissection. Overall the description of the laparoscopic part of the operation note gives the impression [Dr C] has dissected his way through small bowel mesentery to get to the

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retroperitoneum rather than approaching it in an appropriate and pre-planned manner. The description of the open part of the operation does not correct this impression. It seems the surgical anatomy was not understood and there was no appreciation of how the mass may have distorted it.

e) There never should have been a conversion to an open operation because the attempt at the laparoscopic dissection of the retroperitoneum should never have been undertaken. [Dr C] converted as attempts at laparoscopic dissection failed irrespective of that he had forced himself into the position of opening. From reading his operation note it would have been negligent to abandon the operation after the laparoscopic attempt, to not check for any injury/damage following his deep dissection into the retroperitoneum under poor visibility.

f) The mass was not encapsulated and should not have been excised — I will address this in comments to the second operation.

g) The operation note states there was complete haemostasis, this is difficult to accept given the proven highly vascular nature of the tumour, the position of the tumour, the way major vessels were stretched over the tumour and the laparoscopic 'blind' dissection. Unfortunately, no information is provided as to how 'complete haemostasis' was achieved.

h) Post-operative instructions are poor — given the nature of the surgery undertaken — this was major intra-abdominal surgery therefore it would have been impossible for [Mr A] to be ready for discharge the following day.

Individually many of these points are substantial departures; combined they are more than substantial departures from good practice.

Second and Third Operation 4th [Month4]

[Mr A] was taken back to theatre due to bleeding. He was unstable by this point — retrieval had been requested to transfer him to [Hospital 2] and he was underway with his massive transfusion. The second operation should have been a damage control laparotomy only — time was wasted that should have been used to get [Mr A] to [Hospital 2]. The objective of a damage control laparotomy is to 'delay the imposition of additional surgical stress at a moment of physiological frailty'. This is what the Royal Australasian College of Surgeons teaches its fellows. The idea is to minimize time in theatre until such time as the patient is stable. The concept applies to both elective and emergency procedures and should be considered in a number of situations of which [Mr A] met the following:

- Inability to achieve haemostasis
- Combined vascular and hollow organ injury
- Evidence of decline of physiological reserve
- Operating time >60 minutes

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a) [Mr A] was taken back to theatre and the whole abdomen was inspected for a source of bleeding before the original operating site was inspected. In the absence of any trauma or similar the obvious source was going to be the operative site. This was time wasting and suggests a reluctance to consider the first operation could be the cause.

b) A laceration of the duodenum was noted and this was repaired — this is the appropriate thing to do to prevent any contamination, even in a damage control laparotomy. However, this was followed by a duodenal-jejunal bypass which was an unnecessary major procedure at this time. It extended the operating time unnecessarily and we cannot be sure that this surgery did not aggravate the bleeding problem. The tumour bed should have been packed and nothing more. A delay in bypass surgery will not lead to a patient's death but inadequate management of any bleeding and not stabilizing them will. In the first operation [Dr C] claims the tumour was well encapsulated and this is part of the reason he removed it. At the second operation he finds a laceration in the duodenum and in the operation note wonders if it could be due to infiltration of the tumour. The laceration is due to the first operation irrespective of whether the duodenum was involved with tumour or not. The final pathology report of the excised tumour reveals small bowel i.e. duodenum was attached to it, '*sections show portions of small bowel wall with a feature of a large well differentiated neuroendocrine tumour*'. The mass therefore was not encapsulated as [Dr C] claims. Bluish dis-colouration of the distal small bowel is noted and this was left which was the appropriate thing to do. However, [Dr C's] operation note states this was probably also mediated by tumour infiltration. If this discolouration had been due to tumour infiltration it should have been noted at the first operation, I know of no pathophysiological process involving tumour that would have led to small bowel looking bluish when it was normal looking only a few hours earlier except for ischaemia i.e. the blood supply had been compromised. [Dr C] was looking at ischaemic bowel and the post mortem report confirms this. It is of concern that he could not recognize this but one also gets the impression he did not appreciate the extent of vascular injury/damage that had occurred by this time.

c) The under appreciation of the situation [Mr A] was in is confirmed by the fact [Dr C] left. [Mr A] was in a critical condition, [Dr C] should have stayed at least until the retrieval team arrived. When the retrieval team arrived they immediately appreciated [Mr A] was unstable and could not be moved, they were aware [Dr C] had left and according to the notes provided to me they could not contact him. [Dr C] was finally contacted when the retrieval team rang the ICU consultant at [Hospital 2] who then rang the accepting surgeon at [Hospital 2] who then contacted [Dr C] and informed him [Mr A] had to go back to theatre.

d) The third operation is what should have been done during the second. By the third operation it is obvious it is too late e.g. [Mr A] had had 10 units between his first bleed and the end of the second operation approximately 3.5 hours, after the second operation he had another 15 units of blood in 39 minutes and his requirements for blood pressure support had been increasing all the time.

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The long second operation and failure to treat as damage control is a moderate departure from good practice. The finding of the duodenal laceration in light of what is known about the first operation (claim the tumour was encapsulated and failure to recognize duodenal injury) is again a substantial departure from good practice during the first operation. The under appreciation of the gravity of the situation is a substantial departure from good practice.

One would hope that there would never be a situation such as this again at [Hospital 1]. I would recommend if not already attended that the surgeons working in [Hospital 1] undertake the Definitive Surgical Trauma Care Course. The section on decision making would be extremely useful to them.

In future a retrieval team probably should be sent as soon as requested. I accept I have no knowledge as to what the ICU team at [Hospital 2] were told in organizing the retrieval, a retrieval team can only work on the information the requesting hospital makes. This leads back to my comments about the under appreciation of the situation by those at [Hospital 1].

With the privilege of retrospection that I have one can see that if the gravity of the situation had been appreciated, the retrieval team requested to come immediately and only had a damage control laparotomy had been undertaken for the second operation, [Mr A] could potentially have been in [Hospital 2] before 6pm rather than at 10:30pm. Time was critical.

Coroner's Reports[1]

[Report 1]

[Mr A] died because a highly vascularized carcinoid tumour invaded parts of the retroperitoneum and duodenum. Pre-operative diagnostic didn't show the extent of the disease which was far more advanced than the pre-operative CT-scan from 10 [Month2] revealed. [Mr A's] death was probably not avoidable because the tumour had already infiltrated major vessels and the duodenum which would have burst any time soon even without an operation.

[Mr A] died because he had a catastrophic haemorrhage following an unnecessary operation in a small hospital that was not designed or supported for the surgery that was performed.

Pre-operative CT did show that the tumour involved the duodenum, no other work-up or investigation was undertaken to aid decision making. [Mr A's] death from his carcinoid may have occurred but there is no evidence that it had invaded any major vessels (this claim is not supported by the post mortem or [Dr C's] described operative findings) nor can it be said with any certainty that the tumour would have ruptured if left alone.

[1] This refers to Dr C's reports to the Coroner.

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[Report 2] *(this is a long report and I have not copied the relevant sections just noted which point my comments refer to)*

Point 8 — This is not supported by the notes from when [Mr A] was seen in clinic on the 2nd of [Month3]. [Dr C] states there was agreement to look for an intra-abdominal mass and if nothing was found to open to look for a retroperitoneal tumour. The retroperitoneum is intra-abdominal I believe [Dr C] means he was going to look for an intra-peritoneal tumour. It is not clear why he was looking for tumour here as there was no evidence on the limited pre-operative work-up that there was anything to be found intraperitoneally, the mass was in the retroperitoneum. [Dr C] knew this, it is in his indications for the first operation. If he didn't believe the CT scan report because he thought he was going to find something intra-peritoneally despite nothing identified on the CT scan then he should have reviewed the scan again with a radiologist or obtained a new CT scan. He states if there was nothing found intra-abdominally (*NB previous comments w.r.t retroperitoneum and intra-peritoneal*) then there was agreement to convert to an open operation for him to operate in the retroperitoneum to obtain tissue. There is no evidence to support this claim. Furthermore, if it were true and [Dr C] had consent only to open [Mr A] to look for a retroperitoneal tumour not to undertake a laparoscopic search he should never have started something he knew he didn't have consent for?

Point 9 — The change to the report of the CT scan between 13th [Month2] and 8th [Month3] is minor. The approach to the mass should have been the same on 8th of [Month3] after minor amendment to the CT report as it was on 13th of [Month2] with the original report. The only real difference between the two reports is that 13th [Month2] suggest GIST or lymphoma as a diagnosis, these are not included in the 8th of [Month3] report. The size and position of the mass was not altered. It is completely irrelevant to operative approach as to whether the mass was a malignant lesion or lymph nodes, what is important is where it is anatomically. [Dr C] raises this again in point 43. [Dr C] blames a poor/changed CT report for under-estimating the extent of disease but then when he first operates he undertakes a search for tissue that was never identified on the CT. This is contradictory. If a search was undertaken for superficial tissue not reported as being seen on the CT scan it implies [Dr C] either: a) did not believe the CT scan report and therefore thought it was 'poor' before he operated and not after it had had a very minor amendment or b) he thought disease had progressed and there might now be superficial tissue to biopsy. If it were a) he should have had the CT reviewed by a specialist GI radiologist and if it were b) he should have repeated the CT scan.

Point 10 — *this questionable lung metastasis* — it is exceedingly rare for lung tumours to metastasize to the abdomen but even if it was a metastasis it does not justify the surgery that was performed.

Point 13 — Contradicts point 8 where [Dr C] states he had permission to open the abdomen for an approach to the retroperitoneum not to do this laparoscopically.

Point 14 — Contradicts claims the tumour was well encapsulated.

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Point 15 — Involvement of duodenum is obvious on the CT, I did not have arterial phase images so cannot comment on vascularity but position of the tumour and the way the SMA is stretched over the top of it means any surgeon should have been suspicious. In addition the middle colic artery cannot be seen and how this relates to the tumour. If [Dr C] did know the tumour was highly vascular he should not have proceeded knowing he had no support in [Hospital 1] if there was bleeding or any other major complication. When [Dr C] took [Mr A] back to theatre because of bleeding if he knew the tumour was highly vascular why, at the start of this operation was time spent looking for sources of bleeding everywhere but the tumour bed? The initial justification for doing an excisional biopsy of the tumour was because it was well encapsulated, the operation notes fail to mention anything about 'high vascularity'. In the report to the coroner 3 months later high vascularity is now a justification for the excisional biopsy. As the operation notes are contemporaneous to the events of [4 Month4] I would accept these as the correct account. There is no mention of any type of vascularity which suggests [Dr C] did not appreciate how vascular the tumour was at the time he operated.

Point 26 and 33 — *The pre-operative diagnostic did not show the extent of the disease.* The CT did show the extent of the disease, I reiterate [Mr A] was inadequately worked-up before surgery. The CT scan cannot and should not be blamed for [Dr C] not knowing or appreciating the extent of [Mr A's] disease. The pre-operative CT report was not incorrect and nor was it of inferior quality. The only relevant thing missing from the report was the fact the tumour and the third part of the duodenum could not be separated. This, however is obvious when the CT is reviewed. As the operating surgeon the responsibility rests with [Dr C], he had plenty of time to go over the CT scan with a radiologist and to work-up the patient appropriately. Irrespective of the CT report the extent of disease should have become apparent to [Dr C] when he operated.

Point 36 — If [Dr C] was concerned about a delay of 8 weeks between CT scan and the surgery he should have repeated the imaging? If an opinion from Dr E would have meant he did not operate then he should have obtained an opinion from a specialist gastrointestinal radiologist before he operated?

Point 48 — It is of concern that [Dr C] did not appreciate these findings while he was operating?

Point 50 — The appropriateness of the procedure is not supported by the autopsy findings. The autopsy supports the inappropriateness of the procedure, especially it being undertaken at [Hospital 1]. The numerous points about the type of correct biopsy to obtain are irrelevant. According to the first operation note [Dr C] knew the tumour is in the retroperitoneum, in the report to the coroner he states he knew the tumour was highly vascular. Therefore, if it really was essential to obtain a biopsy after the failed laparoscopic search for a superficial biopsy [Mr A] should have been transferred to [Hospital 2]. [Hospital 2] offers tertiary services and has all the support and staff for surgery on a highly vascular retroperitoneal tumour if it's the correct thing to do.

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Bottom Line — *if the correct radiological diagnosis as described in [Dr E's] report would have been known prior to [Mr A's] operation, indication for surgery would never have been made.*

[Dr E] identifies the tumour as:

- Highly vascular, no comment I have no arterial phase images but [Dr C] has reported to the coroner he knew this but still proceeded.
- Containing necrotic components, this is obvious on the CT scan
- Inseparable from the duodenum, this is obvious on the CT scan

Thus [Dr C] would have known this before he operated if he had read the scan correctly and if he couldn't read the scan as I have repeatedly commented, he should have gone over it with a radiologist. The inseparability of the tumour and duodenum, if not appreciated at the time the scan was looked at should have become apparent at the time [Dr C] operated. The pathology report does not support his claim the tumour was encapsulated, he should have been aware he had entered the duodenum.

[Dr E] offers neuroendocrine as a likely diagnosis, see previous comments about lack of work up for the patient, as a surgeon [Dr C] should have considered this as part of a differential diagnosis. It is not a departure from good practice that [Dr C] didn't consider a neuro-endocrine tumour as the diagnosis but it is a moderate departure from good practice that he didn't consider any differential diagnoses.

Indication for surgery may still have been made but not in [Hospital 1]. In addition the reason for surgery was never to remove a highly vascular tumour from the retroperitoneum, according to all the information I have been provided with including [Dr C's] operation notes and reports to the coroner this was an intra-operative decision [Dr C] made at the first operation."

Addendum

"I am writing in response to [Dr C's] response to my opinion.

With respect to the covering letter from [his Barrister] I am not sure if I am supposed to respond to what was raised however I do make the following comments.

<u>Point 3</u>

It is incorrect to say the CT did not show tumour invasion into the duodenum.

Prior to writing my response I showed the CT scans to two of my colleagues neither sub-specialist GI surgeons. They were provided with absolutely no information about the case just a request to look at the scans and report what they saw. As I did, they reviewed the CT using all views available (axial, sagittal, coronal) and both identified that the mass was intimately associated with the third part of the duodenum, there was no clear plane between the two therefore they (like myself) were suspicious that the tumour involved the duodenum.

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In my opinion I did not specifically state the tumour invaded the duodenum but did identify its proximity to the third part of the duodenum and the loss of normal planes between the two. Appropriate pre-operative work-up would have sorted this issue out.

Point 4

Rapid volume expansion is completely irrelevant. [Dr E] has only raised this as a possibility not a certainty and if it truly had occurred why did [Dr C] not note the mass was bigger than reported on the CT? Whether the tumour had increased in size or not it is not clear how this defends [Dr C's] decision making on the day he operated. He still claims to have enucleated the tumour, the pathology report shows this is not the case.

Point 5

What team made the decision?

With respect to the anaesthetic — At the beginning the operation was for an anaesthetic to undertake a laparoscopic biopsy (with possible conversion to open) the operation did not set out to be a major dissection in the retroperitoneum. It is likely if the anaesthetist had known this at the start they would have declined to anaesthetise [Mr A].

If [Dr C] feels the patient should have gone through an upper GI MDT meeting — why did he not arrange this before operating?

With respect to [Dr C's] detailed response to my opinion I do not intend to go over everything again as it does not alter the opinion I provided previously. I would however add the following comments.

Ad 1)

[Dr C] had been at [Hospital 1] for 9 days however prior to this he had worked at [Hospital 2] for a number of years. He cannot now claim he did not know how things worked in this DHB e.g. he understood the patient would only be referred to one MDM meeting — I would be surprised if [the DHB] had such a policy and I am sure some patients are discussed in more than one MDM in order to gather information and aid decision making.

Ad 2)

I do not dispute any of what [Dr C] has written but he has failed to appreciate the point I was making is that there was absolutely no work-up for [Mr A] prior to surgery. In a college fellowship exam this would be a failing point.

In addition he now claims to have done a full examination of all [Mr A's] accessible nodal areas (neck, axilla etc). This is not documented in the clinic notes or clinic letter thus on the balance of probabilities I do not believe this was done.

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Ad 2b)

I agree retroperitoneal carcinoids are rare. However, the root of the small bowel mesentery is a common location for midgut carcinoid metastases. I do not expect anyone to have come to this diagnosis immediately it simply should have been considered as part of the pre-operative work-up which was not done.

Ad 2e)

The association between tumour and duodenum was apparent on the CT.

Ad First operation 4th [Month4]

A — this is not a question of [Dr C's] technical ability but rather more his judgement and decision making.

D — reads like a textbook description of how the operation should be done. This is not supported by the provided operation note which is light on detail, mentions a 2–3cm dissection in an area that is not that deep and even [Dr C] says visibility was poor. My comments are based on the contemporaneous operation note and have not changed.

F — Tumour had duodenum attached to it therefore not encapsulated.

Ad second and third operation 4th [Month4]

I have not changed my view the second operation should only have been damage control. A patient does not need to have all the reasons for a damage control laparotomy as outlined in [Dr C's] response. I provided four reasons.

[Dr C] states [Mr A] was completely stable physiologically and had been given no blood so did not warrant a damage control laparotomy. I dispute this because:

- [Mr A] had had episodes of tachycardia and hypotension in PACU (PACU observation chart)
- [Mr A] was already on blood pressure support at the start of the second operation (anaesthetic chart)
- [Mr A] had received 10 units of blood and many units of clotting factors by the end of the second operation — the blood had started to be given before the second operation started (blood giving documentation)
- [Mr A] was acidotic at the start of the second operation with an elevated lactate. He remained acidotic throughout, becoming even more so as time went on. Lactate continued to rise (laboratory blood gas results).
- [Mr A] may not have been coagulopathic at the start of the operation but he was at the end (laboratory results)

B) [Mr A's] second operation took nearly four hours. This does not support a 15–20 min bypass operation. A duodenal jejunal bypass is a major operation, should not be rushed and I dispute it is a 15 minute procedure. It is not at all clear how this stopped intestinal bleeding and given the blood product [Mr A] received, his increasing acidosis etc [Mr A] was worse at the end of the second operation which achieved nothing.

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The extent of the vascular injury was not appreciated — [Dr C] saw ischaemic bowel but did not appear to recognise it as such (operation note) and the ischaemia is confirmed at autopsy.

The autopsy report does not support the claim there was no vascular injury, the report makes no statement about the IVC, SMA or portal system except to mention the IVC was normal in the mediastinum where [Dr C] was not operating. The report does say there was haematoma at the mesenteric root and makes no comment about any of the major vessels in this area. Even if the superior mesenteric artery was still intact in this area (and we do not know as not mentioned in the autopsy) there must have been some injury to render the bowel ischaemic and for [Mr A] to have required a 25 unit transfusion.

C) I don't think anyone would decline [Dr C] a refreshment break after so long operating however he should still have been contactable. The fact he couldn't be contacted is more of an issue than him not being with the patient.

Overall the failings in decision making can be summarised into three areas.

1) No pre-op workup or planning

As part of his defence he has placed blame on the CT report — as with surgeons radiologists are sometimes wrong and as the operating surgeon the responsibility lay with [Dr C] to be sure [Mr A] had been correctly worked-up for the correct operation.

2) Operating in a small and unsupported centre such as [Hospital 1] and not abandoning the first operation when no intra-peritoneal mass to biopsy could be found.

[Dr C] has provided pages of justification for the surgery he performed to obtain a biopsy. It does not justify why he did what he did, it just outlines the risks and benefits of various biopsy techniques. Nor does it change the fact he should have stopped before the situation was irretrievable.

3) Not doing a damage control laparotomy for the second operation.

When [Dr C] took [Mr A] back for a second operation it was long and unnecessary. Proper abdominal packing would have temporised, [Mr A] should have been stabilised and retrieved to [Hospital 2] instead he continued to deteriorate.

As stated in my original opinion [Mr A] died because he had a catastrophic haemorrhage following an unnecessary operation in a small hospital that was not designed or supported for the surgery that was performed.

Yours faithfully

Associate Professor Elizabeth Dennett FRACS, FASCRS"

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