

Nelson Marlborough District Health Board
General Surgeon, Dr C

A Report by the
Health and Disability Commissioner

(Case 12HDC01488)



Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

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Executive summary

1. Mr A, aged 80 years, had significant medical co-morbidities, which included an abdominal aortic aneurism repair. On 4 Month⁴ 2012, general surgeon Dr C reviewed Mr A in the surgical outpatient clinic at a public hospital (the Hospital).
2. Dr C recommended to Mr A that he undergo a cholecystectomy (removal of his gallbladder) and a hernia repair operation, and that because of his previous aneurism surgery, he would need an open operation, which would be more significant than a laparoscopic approach because of his age and the trauma to his body. There is no record of any information regarding the available alternative options having been provided to Mr A.
3. On the morning of 24 Month⁵ 2012, Mr A presented at the Hospital for his surgery. He signed a consent form, which listed the possible risks of the procedure as “bleeding/infection/CBD inj/recurrent hernia”. At the time of the surgery, Dr C was subject to voluntary restrictions on his surgical practice.
4. During the surgery, Dr C decided not to undertake the planned intraoperative cholangiogram.² Dr C did not consider performing a subtotal cholecystectomy³ because he thought that he had identified the anatomy, and the dissection was relatively easy and uneventful. Dr C anticipated an uncomplicated recovery.
5. The operation concluded at approximately 12.45pm, and Mr A was transferred to the theatre recovery unit for his initial routine postoperative care. Initially his condition was unremarkable, but at 1.35pm his blood pressure dropped to 70/49mmHg (normal is 120/80mmHg), and the Redivac drain⁴ output began to increase. Over the next 10 minutes his blood pressure continued to drop and, at 1.45pm, registered nurse (RN) E contacted the anaesthetist, Dr P.
6. At 2.05pm Mr A’s blood pressure dropped further to 76/43mmHg. Mr A’s measured haemoglobin⁵ had decreased from 124 preoperatively to 70. Dr P charted two litres of blood, with one litre to be given immediately and one to be given over an hour. Dr P asked RN E to contact Dr C.

¹ Relevant dates are referred to as Month1-Month5 to protect privacy.

² An intraoperative cholangiogram may be conducted during a cholecystectomy. The surgeon places a catheter into the cystic duct, and a dye that blocks X-rays is injected into the common bile duct. X-rays are taken to look for gallstones that may be in the common bile duct, and to allow the surgeon to see the anatomy of the bile duct system from the liver to the small intestine. Viewing the bile ducts before removal of the gallbladder may help ensure that the surgeon does not accidentally cut or damage the common bile duct.

³ A cholecystectomy involves removal of the gallbladder. A subtotal cholecystectomy entails leaving the posterior wall of the gallbladder attached to the liver and securing the cystic duct at its origin from within the gallbladder with a purse-string technique.

⁴ A surgical drain is a tube commonly placed by surgeons to remove pus, blood or other fluids from a wound.

⁵ The oxygen-carrying pigment and predominant protein in the red blood cells.

7. Dr P contacted nursing staff again at about 2.30pm but gave no new instructions. Mr A's blood pressure was 75/45mmHg. At 2.35pm Dr C arrived and found that Mr A was comfortable with a soft non-distended abdomen, responsive, and had a pulse of 75 (normal is 60 to 100 beats a minute) and his blood pressure was 70 systolic.⁶ Dr C was unsure whether Mr A's condition was caused by a "true bleed" because the drain contained only 30ml of blood.
8. Dr C instructed RN E to continue to observe Mr A and, if his blood pressure did not improve with the blood transfusion, to call him (Dr C), and he would order an ultrasound scan to exclude bleeding. Mr A's blood pressure continued to be low, but did not drop further.
9. At 2.55pm Mr A's blood pressure dropped to 69/40mmHg, and the drain contained 200ml of fluid. Dr C arranged an ultrasound scan, which showed that Mr A had a 20cm collection of blood above his liver and well over a litre of blood within his abdomen.
10. Dr C decided to re-operate to control the bleeding. The theatre team, which included consultant surgeon Dr D, was ready by around 4pm. Mr A's abdomen was reopened and blood and clots were removed. The gallbladder bed in the liver was dry, but a spurt of blood was coming from the medial⁷ side of the "presumed" right hepatic artery. Several attempts to suture the artery led to splitting and further bleeding. The major blood vessels enter the liver on its inferior surface in a centrally placed groove called the porta hepatis. Dr C and Dr D decided to attempt to control the bleeding by way of a Pringle manoeuvre (applying a clamp or other compressive device to the porta hepatis). This was unsuccessful, so they decided to make a tourniquet from vascular tape and a cut-down catheter. During application of the tourniquet, tape was passed through the wall of the portal vein and caused further blood loss.
11. At 6.45pm, it was concluded that further resuscitation attempts were futile given Mr A's age, medical issues, duration of the hypotension, and the ongoing uncontrolled bleeding. Active resuscitation was stopped and, sadly, Mr A was declared deceased at 7.20pm.
12. The post mortem found that the cause of death was hypovolaemic shock secondary to ongoing blood loss. The source of blood loss was in the first instance the left hepatic artery, which appeared to have been damaged during the initial cholecystectomy, and in the second instance from damage to the portal vein during the second surgery.

Findings

Dr C

13. Mr A was elderly with multiple co-morbidities, and his surgery was elective rather than acute. A reasonable consumer in Mr A's circumstances would expect to receive relevant information about any restrictions on his surgeon's practice. This information

⁶ During each heartbeat, blood pressure varies between a maximum (systolic) and a minimum (diastolic) pressure.

⁷ Toward the middle or centre.

may have influenced Mr A's decision to undergo the surgery at that time and place, and to have had it performed by Dr C. By not providing that information, Dr C breached Right 6(1)⁸ of the Code of Health and Disability Services Consumers' Rights (the Code).

14. Dr C's decision to proceed with a full cholecystectomy meant that he did not provide services to Mr A with reasonable care and skill and breached Right 4(1)⁹ of the Code.
15. Following the surgery, Mr A had prolonged hypotension and a marked drop in haemoglobin consistent with significant postoperative bleeding. The delay before re-operating, including that caused by obtaining an ultrasound scan, was poor care and placed Mr A at risk of harm. Accordingly, Dr C breached Right 4(4)¹⁰ of the Code.
16. During the re-operation, Dr C made a serious error when he passed tape through the wall of Mr A's portal vein. Dr C failed to provide services with reasonable care and skill to Mr A and further breached Right 4(1) of the Code.
17. 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.

Nelson Marlborough DHB

18. The team performance was sub-optimal. Every member of the clinical team had a responsibility to recognise the risk that Mr A's prolonged low blood pressure presented to him, and the clinical picture suggestive of on-going blood loss, and each had an individual responsibility to advocate for Mr A. It was not sufficient to wait for Dr C to make the decision to re-operate.
19. Nelson Marlborough DHB is responsible for the lack of critical thinking and proactivity of its staff. Nelson Marlborough DHB failed to provide services to Mr A in a manner that minimised the risk of harm and, accordingly, breached Right 4(4) of the Code.

⁸ Right 6(1) states: "Every consumer has the right to the information that a reasonable consumer, in that consumer's circumstances, would expect to receive, including —

- (a) An explanation of his or her condition; and
- (b) An explanation of the options available, including an assessment of the expected risks, side effects, benefits, and costs of each option; and
- (c) Advice of the estimated time within which the services will be provided ..."

⁹ Right 4(1) states: "Every consumer has the right to have services provided with reasonable care and skill."

¹⁰ Right 4(4) states: "Every consumer has the right to have services provided in a manner that minimises the potential harm to, and optimises the quality of life of, that consumer."

Complaint and investigation

20. The Health and Disability Commissioner received a complaint from Mrs A regarding the services provided to her late husband, Mr A. The following issues were identified for investigation:

- *Whether Nelson Marlborough DHB provided Mr A with an appropriate standard of care between 17 Month1 and 24 Month5 2012.*
- *Whether surgeon Dr C provided Mr A with an appropriate standard of care between 17 Month1 and 24 Month5 2012.*

21. The parties directly involved in the investigation were:

Mrs A	Complainant
Mr B	Complainant's advocate
Nelson Marlborough DHB	Provider
Dr C	Provider/general surgeon
Dr D	General surgeon
RN E	Anaesthetic nurse
Dr F	Anaesthetist
Dr G	Resident medical officer

22. Information was reviewed from the above parties, and from:

Professor of surgery
New Zealand Police
Coroner
Dr I Pathologist
RN J Staff nurse
Dr K Specialist physician
RN L Registered nurse
EN M Enrolled nurse
RN N Registered nurse
RN O Charge Nurse/Manager
Dr P Anaesthetist
RN Q Registered nurse

Also mentioned in this report:

Dr R General practitioner

23. Independent expert advice was obtained from consultant surgeon Dr David Schroeder (**Appendix A**).

Information gathered during investigation

Background

24. Mr A, aged 80 years at the time of events, was living independently at home with his wife. He had significant medical co-morbidities, which included an abdominal aortic aneurism repair, renal impairment (his creatinine¹¹ had been persistently elevated for several years), anaemia, a possible CVA (stroke) affecting his speech, a duodenal ulcer, hypertension, and previous cataract surgery. In early Month1 2012, Mr A presented to his general practitioner (GP), Dr R, with back and abdominal pain. His associated symptoms included nausea, vomiting and dark urine. He was commenced on an antibiotic, amoxicillin, and his symptoms gradually improved.
25. On 4 Month1, Mr A underwent liver function blood tests, the results of which were abnormal.¹² On 5 Month1 he underwent an ultrasound, which showed gallstones, a thick walled gallbladder and an 8mm common bile duct (CBD).¹³
26. On 6 Month1, Dr R referred Mr A to the surgical outpatient clinic at the Hospital because Mr A had had cholecystitis.¹⁴ On 18 Month1, Mr A was reviewed by general surgeon Dr C.

Dr C

27. Dr C qualified as a doctor overseas and was made a Fellow of an overseas college of surgeons. In 2009, Dr C applied for a position at the Hospital.
28. In early 2010, the Medical Council of New Zealand (MCNZ) advised Dr C that he would be registered within a special purpose scope of practice to work as a specialist in general surgery at the Hospital under the onsite supervision of consultant general surgeon Dr D, and offsite supervision of a consultant general surgeon.
29. In 2010, Dr C commenced employment at the Hospital. NMDHB advised that the first adverse incident relating to Dr C that came to its attention was the death of a patient in early 2011, owing to a postoperative haemorrhage following an open cholecystectomy¹⁵ that had been converted from a laparoscopic procedure. At the time of the internal investigation of that case, NMDHB became aware of two cases of

¹¹ Serum creatinine is an important indicator of renal health. It is an easily measured by-product of muscle metabolism that is excreted unchanged by the kidneys.

¹² Bilirubin 50, ALP 200, GGT 252 and ALT 302.

¹³ A dilated (> 7mm) biliary tree, the path by which bile is secreted by the liver then transported to the first part of the small intestine, can sometimes indicate a biliary obstruction. Common causes include gallstones that become dislodged from the gallbladder and travel down the bile duct to the point at which it drains into the duodenum. This is the narrowest part of the bile duct and gallstones can become blocked or impacted at this point.

¹⁴ Cholecystitis is inflammation of the gallbladder, which occurs most commonly owing to obstruction of the cystic duct with gallstones (cholelithiasis). Blockage of the cystic duct with gallstones causes accumulation of bile in the gallbladder and increased pressure within the gallbladder.

¹⁵ Cholecystectomy is the surgical removal of the gallbladder. It is a common treatment of symptomatic gallstones and other gallbladder conditions. Surgical options include the standard procedure, called laparoscopic cholecystectomy, and an older more invasive procedure, called open cholecystectomy.

common bile duct injury during laparoscopic cholecystectomies performed by Dr C, which had occurred in late 2010 and early 2011.

30. In early 2011, the Clinical Director at another DHB (DHB2) wrote to NMDHB's Executive Clinical Director Specialist after concerns were raised in relation to two patients who had been transferred to DHB2 with bile duct injuries after having been operated on by Dr C at the Hospital. The Clinical Director of DHB2 advised NMDHB of its protocol for surgeons who have such issues, and offered further discussion. NMDHB requested that Dr C cease all laparoscopic surgery, while a supervision and education package was put in place in conjunction with DHB2.
31. Dr C agreed to cease performing laparoscopic cholecystectomies pending an independent review of his performance of that procedure. In 2011, the review was conducted by his surgical peers. Following the review and professional advice from his peers on his surgical technique, he resumed performing laparoscopic cholecystectomies.
32. In Month1 2012, a patient suffered a diathermy¹⁶ injury during a laparoscopic cholecystectomy performed by Dr C. Dr C then stood down from all laparoscopic cholecystectomy surgery pending an MCNZ performance assessment committee (PAC) review. It was during this period of stand-down that Dr C conducted the "open" surgery on Mr A that is the subject of this complaint.
33. Dr C stated to NMDHB that in New Zealand he had encountered a far greater number of unexpectedly difficult cases than he was used to. He attributed this to the greater degree of obesity in the younger, predominantly female, population compared to that which he had experienced overseas. Dr C said that in New Zealand patients there is a higher incidence of fibrosis and adhesions around the operative areas of cholecystectomies and that, prior to coming to New Zealand, his surgery always involved assistants with varying degrees of surgical training, either consultant colleagues or registrars. He noted that there were no registrars at the Hospital.

Events prior to the decision to perform a cholecystectomy

34. On 18 Month1 2012, Dr C reviewed Mr A. Dr C reported to Dr R that, in the first instance, Mr A required MRC (magnetic resonance cholangiography)¹⁷ to look for any evidence of a duct stone, which would require ERCP (endoscopic retrograde cholangiopancreatography)¹⁸ to resolve.

¹⁶ Diathermy is high frequency electric current used to produce heat to cut or destroy tissue, or to coagulate blood.

¹⁷ A medical imaging technique used to visualise the biliary and pancreatic ducts in a non-invasive manner. The procedure can be used to locate gallstones in the ducts surrounding the gallbladder.

¹⁸ A technique that combines the use of endoscopy and fluoroscopy to diagnose and treat certain problems of the biliary or pancreatic ductal systems. The physician can visualise the inside of the stomach and duodenum through the endoscope, and inject radiographic contrast into the ducts of the biliary tree and pancreas so they can be seen on X-ray. ERCP is used primarily to diagnose and treat conditions of the bile ducts and main pancreatic duct, including gallstones.

35. Dr C advised Dr R that Mr A had elected to undergo a cholecystectomy after the MRC and any ERCP. Dr C noted that, in light of Mr A's prior aneurism surgery, it was uncertain whether he would be able to have laparoscopic surgery. The letter does not contain any note of whether risks were discussed with Mr A.
36. On 27 Month2, the MRC identified at least two CBD stones in addition to the known gallstones. Dr C referred Mr A to a hospital in a main centre (DHB3) for the ERCP, which was performed on 13 Month3. The ERCP confirmed multiple CBD stones, which were successfully extracted with a balloon following endoscopic sphincterotomy.¹⁹ It was again noted that gallstones were present.
37. On 26 Month3, Mr A was admitted acutely to the Hospital with abdominal pain, vomiting, fever and rigours. Mr A was commenced on antibiotics, and the symptoms resolved quickly. He was discharged the following day, after review by Dr C, who arranged for Mr A to be followed up in the surgical outpatient clinic.

Preoperative appointment — 4 Month4

38. On 4 Month4, Dr C reviewed Mr A in the surgical outpatient clinic. Dr C recommended an open cholecystectomy because of Mr A's previous abdominal surgery and the need to perform a hernia repair. In response to the provisional opinion, Dr C stated that there are no satisfactory alternatives to surgery for removing symptomatic gallstones or being rid of a hernia.
39. Dr C stated to the Police that he explained to Mr A that he required an open operation, which would be more significant than a laparoscopic approach because of Mr A's age and the trauma to his body. Dr C said he told Mr A that the potential complications of bleeding, infection and potential damage to the CBD would still exist with open surgery. Dr C told the Police that at the time of Mr A's procedure he (Dr C) was under a voluntary agreement with MCNZ not to undertake laparoscopic cholecystectomies until completion of the PAC review, unless a vocationally registered surgeon was scrubbed with him and prepared to take over the procedure at any stage. Dr C stated that he believed that his laparoscopic technique was to be reviewed, and not his ability to undertake elective open operations, and said: "[F]rom the planning stage onwards, at no time was a laparoscopic procedure advocated here in view of the previous extent of abdominal incision." Dr C did not advise Mr A of the restrictions on his practice. In response to the provisional opinion, Dr C stated that it did not cross his mind to advise Mr A that he was not in a position to offer laparoscopic surgery. In this regard, Dr C noted that he was never under formal conditions imposed by MCNZ, and NMDHB did not require him to inform patients of his voluntary agreements with it and MCNZ.
40. Dr C stated to the Police that he advised Mr A that, in view of his age, an alternative was to do nothing further in the hope that any further stones reaching the CBD would pass through the sphincterotomy, but there was a chance that acute cholecystitis and even acute cholangitis could occur. Dr C said that Mr A was adamant that he did not

¹⁹ A flexible camera (endoscope) is inserted through the mouth, down the oesophagus, into the stomach, through the pylorus into the duodenum. Procedures associated with ERCP include the trawling of the CBD with a basket or balloon to remove gallstones.

want a reoccurrence of his pain, and wanted to proceed with surgery rather than adopt a “wait and see” approach, to reduce his on-going discomfort and to prevent further recurrent episodes of sepsis. Dr C said that he told Mr A that he did not foresee any major problems with the surgery, but that Mr A would initially need to be in the high dependency unit (HDU), and then in the general ward for about a week after the surgery.

41. Dr C said that Mr A indicated that he had survived more serious surgery than that, and asked to have his gallbladder removed and an upper abdominal incisional hernia repaired at the same time. In response to the provisional opinion, Dr C stated that he fully discussed with Mr A that the proposed surgery “would be less than his aorta surgery, but would still be a significant undertaking for him, and that, given his age and other comorbid conditions, he would be likely to need a longer recovery period”. Dr C further stated: “I believe that [Mr A] did understand the risks of surgery from our discussion. I also believe that he carefully considered the surgical option and the attendant risks.”
42. Dr C did not offer Mr A the option of having his surgery at another hospital. Dr C stated to NMDHB: “The risks of [Mr A’s] age and needing open surgery did not mandate his transfer to a more major facility ... I believe that we had the necessary resources at [the Hospital] and did not contemplate sending him to [a larger hospital] for the surgery.”
43. Dr C stated that he reviewed Mr A’s medical situation in the presence of Mr A’s wife, and said that the option of not having surgery was fully discussed. Dr C subsequently stated to the Police that “[Mr A] attended Out Patients after his return from the ERCP, accompanied by a lady whom I assumed to be his wife. During discussion about the possible surgery, he kept looking at her during our discussion and I believe that I recall hearing her say that it was his decision whether to go ahead with the operation or not.” Dr C repeated this statement to HDC.
44. In contrast, Mrs A²⁰ stated to the Police that the first time she became aware that her husband required a gallbladder operation was at 7.30am on the morning of 24 Month5, when she delivered Mr A to the Hospital for the operation. She stated that she met Dr C for the first time later that day. Mr A’s son said that his mother was quite well at that time, but deteriorated following his father’s death. However, he believes she was in “quite a state” and was muddled immediately after Mr A’s death (when she made her statement to the Police). Mr A’s son said he does not know whether his mother attended the consultation with Dr C, or how much his mother knew about the planned surgery. In response to the provisional opinion, Dr C stated: “The fact that I had discussed the two surgical options with [Mr A] was specifically referred to in my letter to [Dr R] dated 5 [Month4].”
45. Dr C’s reporting letter to Dr R of 5 Month4 is the only record of the 4 Month4 consultation. The letter states: “[H]e is therefore going to be booked for an open cholecystectomy with a cholangiogram to check the patency of the common bile

²⁰ Mrs A now resides in a dementia unit and HDC has been unable to interview her.

duct.” There is no mention of the information provided to Mr A. Dr C stated to the Police: “I agree that my documentation of the conversation could have been better and more detailed.”

46. Dr C booked Mr A for an open cholecystectomy, cholangiogram, and the repair of his upper abdominal incisional hernia. In response to the provisional opinion, Dr C stated that in Month5 NMDHB did not have multidisciplinary team meetings to discuss cases. He expected the operation to be relatively uncomplicated as is the norm for gallbladder surgery, and he did not feel it warranted discussion with other colleagues.
47. Mr A’s son told HDC that he went to see his father the night before the operation. His father talked about having met with Dr C, and said he was having a gallbladder operation, and that it would be “straightforward keyhole surgery”. Mr A’s son does not recall his father saying anything about whether the surgery was the only option or one of several options, and said it was more a case of his father telling him that that was what was happening.

Pre-anaesthetic assessment

48. On 18 Month4, Mr A’s preoperative anaesthetic assessment was undertaken. Anaesthetist Dr P advised the Police that Mr A was fully assessed by way of the nurse-led pre-assessment process overseen by the anaesthetic department at the Hospital. Mr A’s pre-anaesthetic assessment score was ASA 2, which indicated a mild to moderate anaesthetic risk.
49. In response to the provisional opinion, Dr C stated that the pre-anaesthetic assessment failed to show any significant cardiovascular or respiratory contraindications to Mr A’s surgery being undertaken at the Hospital. He stated that he was “reassured by his colleague’s pre-operative assessment”, and considered that it was reasonable to offer Mr A surgery locally. Dr C submitted: “Having regard to the post mortem findings, it could be suggested that the ASA 2 was extremely, or indeed, dangerously optimistic.”

Mr A’s surgery

50. On the morning of 24 Month5, Mr A presented at the Hospital for his surgery.

Informed consent

51. In response to the provisional opinion, Dr C stated that the informed consent process for Mr A’s open cholecystectomy surgery was not a one-off event, but a process that began at the consultation on 18 Month1.
52. Dr C stated to NMDHB that, on the morning of 24 Month5, Mr A was again taken through the operation steps, and the possible complications of bleeding, infection and CBD injury were discussed. Dr C said that with no further questions or concerns, Mr A signed a consent form. The form listed the possible risks of the procedure as “bleeding/infection/CBD inj/recurrent hernia”.
53. There is no further documentation of any other particular risks or options that were discussed with Mr A. Dr C stated to the Police that although he did not document the

full discussion of the options and risks, he believes they were fully discussed with Mr A.

54. Dr P said he met Mr A for the first time at around 10.30am on the morning of 24 Month5 2012 in the theatre holding bay at the Hospital, following a final medical/anaesthetic assessment, to discuss the anaesthesia and obtain Mr A's consent to the anaesthesia.

Cholecystectomy surgery — 24 Month5 2012

55. The following staff were present during the operation: Dr C; Dr P; resident medical officer (RMO)²¹ Dr G; a scrub nurse; anaesthetic nurse RN E; and circulating nurse RN N.
56. Dr P stated to the Police that at approximately 11am he anaesthetised Mr A using a standard anaesthetic of midazolam, fentanyl, propofol, atropine, sevoflurane, rocuronium and supplements of analgesia with morphine. Dr P advised that Mr A's anaesthesia was relatively uneventful for a man of his age and ASA 2 status.
57. Dr C's operation notes indicate that the cholecystectomy was performed first, with the incisional hernia repair performed just prior to closure.
58. Dr C noted that there were no significant adhesions from the previous surgery, and that careful palpation revealed a thickened Calot's triangle.²²
59. Dr C stated to the Police that he was confident that he had identified the cystic duct, which was cleaned, ligated and divided. He decided not to undertake the planned intraoperative cholangiogram, as the previous ERCP performed at DHB3 had cleared stones from the CBD, and he did not plan any duct exploration if stones were again present. He stated to NMDHB that a further reason that the intraoperative cholangiogram was not performed was because "the anatomy had been confirmed". Dr C stated that he inspected the gallbladder and noted that at least one small segment was adhering to the liver. He was able to separate the gallbladder from the liver bed, and minor bleeding spots on the liver bed were cauterised. A small segment of the gallbladder attached to the liver bed was removed, but did not result in any bleeding. Dr C stated to the Police: "There was neither gush of blood nor evidence of bile at the conclusion of my dissection." Dr C stated to NMDHB that no major arteries were seen or felt to be close to the dissection area, and the "deeper pulsation of the presumed Right hepatic branch was palpated prior to division of the cystic artery and the post-dissection operative field was dry". He said he could not recall ever encountering the left hepatic artery during gallbladder surgery. Dr C said: "A Subtotal

²¹ "Resident medical officer" (RMO) is a term covering resident doctors from their last year of undergraduate training until they complete their vocational training. RMOs include undergraduate students as well as those with six or more years' post-registration experience. Various job titles, including trainee intern, intern, junior doctor, house officer, house surgeon, senior house officer/surgeon, registrar, and advanced trainee, are used for RMOs at different stages of their training.

²² The cystohepatic triangle (Calot's triangle) is the area bound by the cystic duct, common hepatic duct, and the liver margin. The Calot's triangle, containing the cystic artery, may also contain an aberrant/accessory right hepatic artery or anomalous sectoral bile ducts.

Cholecystectomy was not considered as once the subserosal plane was established dissection with a sucker was relatively easy and uneventful.” However, Dr C told HDC that in hindsight a subtotal resection would have been preferable, to avoid the subsequent problems of haemorrhage.

60. In response to the provisional opinion, Dr C stated that the CBD was not injured during the first surgery. He said he correctly identified Mr A’s anatomy. He knew where the right hepatic artery and major bile ducts should be and avoided damage to those structures. Dr C said he “palpated the (presumed right) hepatic vessel at the medial limit to [his] dissection prior to ligating the cystic artery. [He] did not expose the hepatic vessel, nor the more superficial common bile duct, both of which would protect the more medial left hepatic branch.” He said his later attempts to control the haemorrhage required dissection around the right hepatic and bile ducts. Dr C stated that he was “completely aware of the progress of dissection” and took measures to avoid harm to the surrounding anatomy. However, he acknowledged that “something happened during the first operation to cause the left hepatic artery to bleed”.
61. Dr C stated that there was never any gush of arterial blood to indicate arterial damage and, upon removal of the gallbladder, the operative area was dry, and a pack was placed there whilst his attention moved to repair the incisional hernia. He stated that at the conclusion of the hernia repair, the pack was removed without any evidence of arterial bleeding, a drain was placed, and the abdomen closed.
62. Dr C stated: “[A]t the conclusion of the first operation, no significant difficulties or risk to the patient had been encountered and I did not anticipate anything but an uncomplicated recovery.” He told NMDHB that the surgery was made more difficult owing to fibrosis, but it progressed with few problems and no evidence of major bleeding. Following the second surgery (see below), Dr C completed an operation note in which he states: “The patient had had a technically more difficult than normal open cholecystectomy in the morning, at which time fibrosis around the Calot’s triangle had caused problems.” Dr C further stated that at all times he was aware that the procedure would be “technically more difficult” because of scarring and adhesions from Mr A’s previous surgeries. However, the operation note for the first surgery does not refer to the difficulty.
63. Dr G stated to the Police that the operation was technically difficult, as the degree of scarring made it difficult for the surgeon to free up the necessary pieces of anatomy for removal, and freeing the adhesions took considerable time. He stated that, eventually, clear access to the gallbladder was gained and it was removed without any apparent complications.
64. Dr G stated: “I cannot recall the exact amount of blood loss, but I do recall thinking it was a relatively ‘bloody’ operation and that the degree of bloody ‘ooze’ at the end was at the upper end of normal. I can confidently say there was no sign of arterial bleeding at this time.”

Postoperative care

65. The operation concluded at approximately 12.45pm, and Mr A was transferred to the theatre recovery unit for initial routine postoperative care. The anaesthetic nurse, RN E, handed over Mr A to the recovery nurse, RN L. Mr A was rousing and coughing and partially obstructing, so they turned him onto his side, and RN E connected the patient-controlled analgesia (PCA).
66. RN L stated to the Police that after handover she connected Mr A to oxygen at 6L (litres) via a face mask, and to a pulse oximeter and blood pressure monitor and AV impulse.²³ She also commenced five-minute monitoring of Mr A's vital signs. She stated that, on arrival, Mr A appeared pale and was breathing in a noisy, loud, congested manner, and was unresponsive to voice. His respirations were 12 breaths per minute,²⁴ but his other vital signs were within the normal range. His blood pressure was 122/65mmHg,²⁵ pulse 80 beats per minute (bpm),²⁶ oxygen saturations 96%, and temperature 36.5°C.²⁷
67. At 1.15pm Mr A appeared to be sleeping comfortably. He was rousable and able to squeeze RN L's hand on command. By 1.25pm he was more aware and able to say he had no pain and did not want his teeth to be put in.
68. At 1.35pm Mr A's blood pressure dropped, and the Redivac drain output began to increase. His blood pressure was 70/49mmHg, two minutes later 78/44mmHg and, after a further two minutes, 90/52mmHg.
69. At 1.45pm RN L handed over Mr A's care to RN E, noting that she had done three quick blood pressure checks because Mr A's blood pressure had suddenly dropped and remained low, and the Redivac drain output had begun to increase.
70. RN E took a further blood pressure reading, which was 89/44mmHg. However, Mr A's other vital observations were within the normal postoperative range (oxygen 94–95% on 4L, pulse 77bpm, respiration rate 12 breaths per minute).
71. At around 1.45pm RN E contacted Dr P and reported that Mr A's blood pressure had begun to decrease gradually, and that he was requiring more intravenous fluids to maintain his blood pressure (a further 500ml). Dr P asked RN E to request a bed for Mr A in the high dependency unit (HDU). The HDU nurse arrived at 2.05pm, by which time Mr A's blood pressure had dropped to 76/43mmHg and, consequently, the HDU nurse refused the transfer of Mr A to the HDU.
72. At approximately 2pm, blood test results showed that Mr A's haemoglobin had decreased from 123gm/l preoperatively to 70. Dr P charted two units of blood, with

²³ Rigid sole foot covers which contain and direct an impulse to the bottom of the foot. This action mimics the natural haemodynamic effect of walking, and is intended to reduce the incidence of venous thromboembolism (VTE) as well as postoperative swelling and pain.

²⁴ The normal respiratory rate for adults usually ranges from 14 to 18 breaths per minute.

²⁵ Normal blood pressure is at or below 120 over 80mmHg (120/80mmHg).

²⁶ Normal resting heart rate for adults ranges from 60 to 100 beats per minute.

²⁷ Normal adult temperature is 36.8°C.

one to be given immediately and one to be given over an hour. The blood transfusion commenced at 2.30pm.

73. Dr P asked RN E to contact Dr C for an urgent opinion. RN E telephoned Dr C at 2.30pm. Dr C stated that he was in his office when he received the call.
74. RN E stated to the Police that Dr P “touched base briefly” at about 2.30pm with no new instructions. Mr A’s blood pressure was 75/45mmHg at that time. Dr C arrived at 2.35pm, examined Mr A’s abdomen and checked the output from the drain. Dr C stated to NMDHB that he found Mr A to be comfortable with a soft, non-distended abdomen, responsive, with a pulse of 75bpm and a blood pressure of 70 systolic, “which was a worry”. He said he was unsure whether Mr A’s condition was caused by a “true bleed” because the drain contained only 30ml of blood. Dr C said he arrived at Mr A’s bedside within five minutes of being notified that there was a problem.
75. Dr C stated to HDC that when he was advised that Mr A had low blood pressure, his immediate concern was of a possible bleed from the liver bed area of the removed gallbladder. Dr C stated that the drain was almost empty, and milking it produced no evidence of a blood collection, but he agreed that drains do block occasionally. Dr C’s instructions were to continue to observe Mr A and, if his blood pressure did not improve with the blood transfusion, to call him (Dr C) again in order for him to order an ultrasound scan to exclude bleeding. In response to the provisional opinion, Dr C stated that he was uncertain whether Mr A’s hypotension could be solely due to bleeding, so he wanted Mr A “to receive the full physiological benefit of vigorous resuscitation with blood (only recently commenced at 2.30pm)”. Dr C also stated that the blood would help protect Mr A’s vital organs from hypotensive damage until the blood pressure was restored.
76. RN E stated that Mr A’s blood pressure continued to be low, but did not drop further. He was pale, his sedation score was two,²⁸ and he answered appropriately when questioned whether he was sore. Mr A’s abdomen was soft and his dressings were not changed.
77. At 2.55pm Mr A’s blood pressure dropped to 69/40mmHg, and RN E noted that there was 200ml of fluid in the drain. She was concerned that Mr A was bleeding, so at 3.00pm she contacted Dr C again. Dr C liaised with Dr G, who organised an

²⁸ The Ramsay sedation scale is used to assess the level of sedation of a hospitalised patient. The scale, from 1 to 6, describes a patient as follows:

1. Anxious and agitated or restless, or both
2. Cooperative, oriented, and calm
3. Responsive to commands only
4. Exhibiting brisk response to light glabellar tap or loud auditory stimulus
5. Exhibiting a sluggish response to light glabellar tap or loud auditory stimulus
6. Unresponsive

ultrasound scan. Dr G stated to the Police that at approximately 3.30pm²⁹ he was telephoned by Dr C, who asked him to order an urgent ultrasound for Mr A.

78. Dr G said that as Mr A had a blood pressure of only 70 systolic, he accompanied him to the radiology department for his scan. Dr G stated that the ultrasonographer advised him that Mr A had a 20cm collection of blood above his liver and well over a litre of blood within his abdomen.
79. Dr G stated that while still in the ultrasonography room, he telephoned Dr C with the results, and Dr C asked him to get the theatre team ready as he would be re-operating.
80. Dr C stated that the delay of approximately 45 minutes between his initial review of Mr A at 2.35pm and the decision to re-operate was because he was anxious to try to resolve the situation without returning to theatre. In response to the provisional opinion, Dr C stated: "I was also very mindful of the potential for increased risk of harm when taking an elderly patient with co-morbidities back to theatre unnecessarily." Dr C therefore initially asked for intense resuscitation, and undertook the ultrasound in order to confirm the hypotension was caused by bleeding. He stated that plans for a return to theatre were urgently implemented once the free fluid was identified in the presence of ongoing hypotension despite fluid resuscitation. In response to the provisional opinion, Dr C stated that, with hindsight, the time taken to arrange and perform an ultrasound proved to be unnecessary but, at the time, it helped cement his decision to embark on the high risks of a major repeat operation.
81. Dr G obtained the assistance of anaesthetist Dr F to further fluid resuscitate Mr A, whose blood pressure had dropped into the 50s during the ultrasound scan. Dr G informed the theatre coordinator of the plan to re-operate on Mr A because of the bleeding. Dr C contacted consultant surgeon Dr D. Dr G stated that the whole theatre team were scrubbed and ready by about 4pm.
82. Dr C stated to the Police that while he was waiting for a theatre to become available he spoke to Mrs A by telephone to inform her of the situation and to advise her of his decision to reopen Mr A's abdomen, and she raised no objections. Dr C told HDC that he "spoke to a lady on the phone prior to taking [Mr A] back to theatre. She answered the phone on the number given in the patient notes as next of kin, so I again assumed that it was his wife. I presume that I asked to speak to [Mrs A], but she may have been one of his daughters-in-law and hence also '[Mrs A]'."
83. Mrs A stated to the Police that she went to the hospital at 3.30pm to see her husband, but did not see him because he was in recovery and, consequently, she returned home. She stated that it was not until later on that evening that she received a telephone call from a nurse at the Hospital, who asked her to come up to the hospital.

²⁹ Dr C told the DHB that he requested the ultrasound at 3pm. The ultrasound report was reported at 3.19pm.

Second surgery

84. The surgery began at around 4.15pm. Dr C stated to the Police that Mr A's abdomen was reopened and blood and clots were retrieved. Dr C stated that the gallbladder bed in the liver was dry, but a spurt of blood was noted coming from the medial side of the "presumed" right hepatic artery, and he believed that vessel was the source of the blood. In response to the provisional opinion, Dr C told HDC that he "never imagined that the origin could be the even deeper left hepatic branch and further dissection was required to isolate the bleeding source".
85. Dr C described the bleeding to HDC as a narrow arterial spurt coming from the structures of the portal triad.³⁰ He stated:
- "This spurt was coming from a more medial undissected area on the medial side of the position of the Hepatic/Right Hepatic vessels and seemed to indicate a point of bleeding rather than a vessel laceration. I am fully aware that the structure more at risk during cholecystectomy, is the Right Hepatic branch but as the lateral arterial surface was visible and undamaged, I considered that perhaps an aberrant cystic artery stump might have been avulsed, to account for the more medial bleed. I did not believe that the even more medial Left Hepatic Artery could have been the origin of the bleed, without signs of injury to the Right Hepatic vessel."
86. Dr C believes that the bleeding from the left hepatic artery may have resulted from avulsion³¹ of an aberrant cystic artery, but he acknowledges that "an instrument may have been inadvertently pushed down to the area, perhaps during the process of ligating and dividing the cystic artery. If that were the case then this is deeply regretted and the result was catastrophic."
87. Dr C stated that access to the bleed was difficult owing to the overhanging CBD or right hepatic duct, and several attempts by both Dr D and himself to suture the rotated artery led to proximal³² splitting and further bleeding.
88. Dr G stated to the Police that "during the attempt to ligate the cystic artery the right hepatic artery was accidentally cut, causing further bleeding. Both [Dr C] and [Dr D] attempted vascular sutures on this artery, but the patient's difficult anatomy combined with the vast amount of bleeding made this impossible."
89. Dr D stated to the Police that there was active bleeding from the anterior and posterior of the cystic artery, and venous bleeding from the right side of the porta hepatis.³³ She said that the cystic artery was tied and ligated, and two attempts were made to repair the vascular injury to the right side of the porta hepatis, "[b]ut it was obvious that for the repair to be successful, control of bleeding was going to be required to allow the dissection of the porta. The operation then moved to a planned Pringle manoeuvre."

³⁰ The portal triad is the arrangement of the portal vein, hepatic artery, and common bile duct, which are bound together.

³¹ An avulsion is an injury in which a body structure is forcibly detached from its normal point of insertion by either trauma or surgery.

³² Next or near to the point of origin.

³³ The "porta hepatis" is a deep fissure in the inferior surface of the liver.

Pringle manoeuvre

90. A Pringle manoeuvre is a technique frequently used in liver surgery to control bleeding by applying a clamp or other compressive device to the porta hepatis. This effectively stops blood flow into the liver by occluding the portal vein and hepatic artery or arteries.
91. Dr C told HDC that during his years of trauma care, he had always had success with the Pringle manoeuvre or packing for haemostatic control of grade 2 and 3 liver injuries, but grade 4 and 5 injuries require the skills of expert liver surgeons.
92. Dr C stated to the Police that a soft bowel clamp was placed around the portal triad as a Pringle manoeuvre “leading to imperfect vascular control and the clamp was interfering with access to the bleeding area. We then decided to fashion a porta tourniquet from a vascular tape and cut down catheter (Rummel Tourniquet³⁴). I am not a Liver surgeon and have never seen such a tourniquet being applied or being used, although I was familiar with a similar technique being used in cardiac surgery.” Dr C stated that Dr D had never used the Rummel tourniquet technique previously either. Dr C stated to HDC that Dr D’s suggestion to use the Rummel tourniquet was made after all other efforts had failed to control the bleeding.
93. Dr C described the placement of the Rummel tourniquet to NMDHB as follows:
- “[T]he duodenum was rolled medially and the lesser omentum³⁵ with the presumed artery, bile duct and portal vein, was grasped between thumb and index finger. The lesser omentum was surprisingly tough (? Previous infection) and a small hole was cut in the anterior surface. An angled forceps was then used to try to bluntly negotiate a passage through to the posterior wall of the omentum and apparently above the structures palpated and held by my thumb and index finger. The soft vascular tape was then passed around the structures of the portal triad and the catheter used to snug it down to achieve occlusion. This led to reasonable control with the tape tented upwards.”
94. Dr C also stated:
- “During all these manoeuvres, my left thumb and forefinger had to concentrate on digital pressure to control the bleeding, leaving only my right hand to do everything else. Using an assistant’s hand for haemostasis had once again obscured my operative view. The previously encountered inflammatory process (Cholangitis) had clearly affected the Hepatoduodenal ligament, making dissection there more challenging.”
95. Dr C said that he had to estimate the positions of the portal triad structures within the thickened tissue, as they could not be palpated and, having managed to bluntly dissect

³⁴ A tourniquet fashioned by passing an umbilical tape around a vessel and bringing both ends through a short red rubber catheter. The tourniquet can be tightened and secured with a perpendicularly placed hemostat at the end of the catheter farthest from the vessel.

³⁵ The lesser omentum is the double layer of peritoneum that extends from the liver to the lesser curvature of the stomach and the start of the duodenum.

out a track through the thickened ligament with one hand, he was able to “retrieve the suitably positioned suture thread and withdraw it through the track. There was no gush of blood to indicate damage to a blood vessel. The sling was then fashioned with the help of my assistant.”

96. Dr C stated:

“Trying to then utilize such an unfamiliar sling technique, with one hand, through fibrotic tissue around the hepatoduodenal ligament, proved an enormous challenge. Trying to use parts of my left hand to assist this process led to imperfect control of the bleeding and hence poorer visibility in my operative field. When I finally did manage to establish a track to place a sling around tissue of the hepatoduodenal ligament, I certainly did not suspect that the dissected passage was through the portal vein as there was no tell-tale gush of blood, but this could have been a function of the hypotensive situation.”

97. Dr D stated to the Police that during the implementation of the loop a further obvious vascular injury occurred as there was considerable venous blood coming from the area of the vascular loop. She stated that the bleeding was partially controlled by snugging the loop up, but there was still some bleeding. Dr G stated to the Police that when the tourniquet was tightened, “the hepatic artery did slow its bleeding, but the portal vein bled more, when it was loosened the reverse was true”. Dr C accepts that an injury to the portal vein occurred during the placement of the Rummel tourniquet, and that this was a surgical error on his part. He said that the visibility was extremely difficult as the soft bowel clamp interfered with his operative view. In response to the provisional opinion, Dr C stated that the decision to undertake the Rummel tourniquet was a matter of last resort, and a general surgeon could not be expected to be familiar with the technique. It was a measure of “pure desperation and the damage to the Portal Vein was unintentional and deeply regretted”.

98. Dr C stated that he believed that the copious bleeding from the area of the tourniquet tape was probably because the tape had torn into the portal vein. He said that the bleeding was controlled with finger pressure, and the exposed anterior surface of the vein was repaired again with a 5/0 suture.³⁶ He said: “[T]his improved the situation but blood from behind the lesser omentum indicated probable unrepaired posterior wall of the portal vein. Successful portal vein repair usually entails an interposition vein graft.” Dr C stated to the Police:

“[N]ever having seen a Rummel tourniquet being placed, I believed the position of the tape selected was adequate to encircle the three portal structures, which were not individually dissected out. I am sure that all three are very easy to feel at post mortem as opposed to during the tension of trying to deal with life threatening bleeding.”

99. Anaesthetist Dr F stated to the Police that it was difficult to keep pace with the rate of bleeding in spite of intravenous cannulae and the use of pressure infusion devices. He

³⁶ Used for larger vessel repair.

and his nurse assistant were unable to maintain an adequate blood volume and blood pressure. Dr F stated that at approximately 4.20pm the first sign of myocardial ischaemia³⁷ appeared and, at 5.15pm, he attempted to insert a central venous line, but he was interrupted by a sudden drop in Mr A's blood pressure as a result of an increase in blood loss.

100. Dr C decided to transfer Mr A to DHB3. However, when the helicopter crew arrived the collective opinion of the anaesthetist and flight team was that Mr A was too unstable for transfer, and so the transfer was cancelled.
101. At approximately 6.15pm, specialist physician Dr K attended the theatre and suggested a trial of a noradrenaline infusion in an attempt to increase Mr A's blood pressure. Dr F stated that an initial bolus and high dose infusion of noradrenaline did not result in any improvement in Mr A's condition.
102. Dr F stated to the Police that at 6.45pm, in discussion with Dr K, it was concluded that further resuscitation attempts were futile given Mr A's age, medical issues, duration of hypotension and ongoing uncontrolled bleeding.
103. Enrolled nurse (EN) M stated that at approximately 6.45pm Dr D unscrubbed, and left the theatre. At approximately 7pm, Dr C also unscrubbed and left the theatre. EN M stated that Dr C was "shaking his head" when he left, and that Dr G was left with his hand in Mr A's abdominal wound.
104. By that time, Mrs A was at the hospital. Dr C stated that he informed her of the situation. Mrs A stated that Dr C told her that Mr A had passed away, and that he had bled to death. Mrs A told Police that this was the first time she had met Dr C.
105. Active resuscitation was stopped, no further surgery was undertaken and, sadly, Mr A was declared deceased at 7.20pm.

Post mortem report

106. Pathologist Dr I stated that the post mortem findings were as follows:
 - Following and during his cholecystectomy and subsequent laparotomy³⁸ Mr A lost approximately 7L of blood.
 - The left hepatic artery had been damaged and subsequently oversewn. This was likely to have been the first source of bleeding after Mr A's cholecystectomy.
 - The right hepatic artery was patent.
 - A device utilised during Mr A's second operation had been passed through the wall of his portal vein and had missed his hepatic artery. When this device was

³⁷ Limitation of blood flow to the heart causes ischaemia (cell starvation secondary to a lack of oxygen) of the myocardial (heart) cells.

³⁸ A laparotomy is a surgical procedure involving an incision through the abdominal wall to gain access into the abdominal cavity.

released the position of the portal sling in the wall of the portal vein was almost certainly the source of significant further blood loss.

107. Dr I found that the main cause of death was hypovolaemic shock secondary to ongoing blood loss. The source of blood loss was in the first instance from the left hepatic artery, which appeared to have been damaged during the initial cholecystectomy. During the second operation, a tape was passed through the wall of the portal vein and caused further blood loss.
108. Dr I noted that Mr A's low blood pressure did not respond to fluid replacement via transfusions, and he developed ischaemic ECG changes. Dr I considered that the ECG changes were likely to have been a reflection of Mr A's severe pre-existing ischaemic heart disease in combination with his significant ongoing blood loss. Dr I stated: "As a terminal event it is possible his ischemic heart disease also contributed to [Mr A's] death."

Further information — Dr C

109. Dr C commented to the Police on the delay between the onset of hypotension at 1.15pm and the second operation commencing at 4.15pm. He stated that he was notified of Mr A's low haemoglobin at 2.30pm, nearly an hour after its onset, and said:
- "[I]n retrospect, I accept I could have been more proactive once I was advised, but I wanted to be certain that the patient would not improve after the blood transfusion given at 14.15, bearing in mind the implications of taking an elderly man back to theatre. I had had no intra-operative cause for concern regarding bleeding. In general many post-operative bleeds settle spontaneously as vasospasm and coagulation take effect, with or without a blood transfusion."
110. Dr C stated to the Police that, at 2.30pm, the relatively small amount of blood in the suction drain did not support a major bleed but, once the drainage had increased by 3pm and the scan confirmed unacceptable free fluid, the decision was made to return Mr A to theatre. Dr C stated that he would estimate that the decision to reopen Mr A took 45–50 minutes from the time he was first notified of the problem, including the time to arrange and perform the ultrasound, and the operation commenced about 45 minutes later.
111. Dr C stated: "[The Hospital] does not have a dedicated emergency theatre standing empty waiting for cases. All theatres are functioning and for urgent cases we often have to wait for the end of a list and even in emergencies we have to wait for a theatre to be vacated and cleaned."
112. Dr C said that, during the second surgery, the bleed appeared to be coming from an area on the medial side of the common hepatic or even right hepatic artery and, as he had not encountered any of the hepatic vessels or any significant haemorrhage during the initial surgery, he believed it to have been most likely due to avulsion of the cystic artery stump. Dr C stated: "[S]ignificant haemorrhage from hepatic vessels after

gallbladder surgery is very rare ... and inadvertent injury to the LEFT hepatic artery must be exceptionally unusual (I have never seen nor heard of a case).”

113. Dr C stated that he voluntarily stood down from NMDHB following Mr A’s case.

Contact with Mr A’s family

114. NMDHB stated that following Mr A’s death, the Service Manager telephoned Mrs A, to offer condolences and offer the opportunity to meet, but Mrs A declined the offer. Mrs A was invited to make contact should she wish to pursue the offer of a meeting, but did not do so.
115. Several months later, the Patient Relations Co-ordinator telephoned Mrs A to offer an opportunity for Mrs A to meet with the Chief Medical Officer. Mrs A referred the Patient Relations Co-ordinator to Mr B, who was acting as her advocate. Mr B did not accept the offer of a meeting with the Chief Medical Officer.
116. The following month, the Patient Relations Co-ordinator again emailed Mr B offering to arrange a meeting with Mrs A, but no meeting has occurred.

Responses to provisional opinion

117. NMDHB accepted the findings in the provisional opinion.
118. The family had no comments regarding the information gathered during the investigation, as set out in the provisional opinion.
119. Dr C’s responses to the provisional opinion have been included in the “information gathered” section of this report, where appropriate.

Opinion: Dr C

Undertaking surgery — Other comment

120. Dr C commenced employment at the Hospital in 2010. The first adverse incident that came to the attention of NMDHB was a death in early 2011 due to a postoperative haemorrhage following an open cholecystectomy, which had been converted from a laparoscopic procedure. At the time of the internal investigation of that case, NMDHB became aware of two cases of common bile duct (CBD) injury that had occurred during laparoscopic cholecystectomies performed by Dr C.
121. Dr C agreed to cease performing laparoscopic cholecystectomies. However, following a review and professional advice from his peers on his surgical technique, he resumed performing laparoscopic cholecystectomies in mid-2011. Subsequently, in Month1

2012, a patient suffered a diathermy injury during laparoscopic cholecystectomy performed by Dr C, who then stood down from all laparoscopic surgery pending an MCNZ PAC review. Dr C stated that he believed that his laparoscopic technique only was to be reviewed, rather than his ability to undertake elective open operations. It was during the period of stand-down from laparoscopic surgery that Dr C conducted the open surgery on Mr A.

122. I accept that in Mr A's case an open operation was appropriate because of his previous abdominal surgery and the need to perform a hernia repair at the same time. My expert advisor, consultant surgeon Dr David Schroeder, advised that other surgeons may have performed a laparoscopic cholecystectomy and a laparoscopic hernia repair, but that both choices were reasonable.
123. Dr Schroeder advised that despite the previous adverse events with Dr C's laparoscopic surgery, he could not see any concerns having been raised about Dr C's general surgical ability or his operative judgement. Dr Schroeder therefore advised that "it would seem to have been reasonable for an open cholecystectomy to be performed by a senior surgeon with good support of specialist anaesthetist and blood bank facilities, despite previous problems with laparoscopic surgery". In response to the provisional opinion, Dr C stated that the pre-anaesthetic assessment failed to show any significant cardiovascular or respiratory contraindications to Mr A's surgery being undertaken at the Hospital. He stated that he was "reassured by his colleague's pre-operative assessment" and considered that it was reasonable to offer Mr A surgery locally. I note Dr C's submission that NMDHB did not conduct MDT meetings at that time, and that he expected the operation to be relatively uncomplicated, so he did not feel it warranted discussion with other colleagues.
124. I remain of the view that, in all the circumstances, it would have been prudent for Dr C to have discussed Mr A's case with a peer before proceeding with the surgery, but accept my expert's advice that it was reasonable for Dr C to have proceeded with an open cholecystectomy in this case. Accordingly, I do not find that Dr C breached the Code in respect of his decision to undertake surgery on Mr A.

Information — Breach

125. In response to my provisional opinion, Dr C stated that the informed consent process for Mr A's open cholecystectomy surgery began on 18 Month1. Following that appointment, Dr C advised Mr A's GP, Dr R, that Mr A required an MRC and possible ERCP and noted that, in light of Mr A's prior aneurism surgery, it was uncertain whether he would be able to have laparoscopic surgery. The letter does not contain any note of whether risks were discussed with Mr A.
126. On 27 Month2, the MRC identified at least two CBD stones in addition to the known gallstones. Dr C referred Mr A to DHB3 for the ERCP, which was performed on 13 Month3. The ERCP confirmed multiple CBD stones, which were successfully extracted with a balloon following endoscopic sphincterotomy. It was again noted that gallstones were present.

127. On 26 Month3, Mr A was admitted acutely to the Hospital with abdominal pain, vomiting, fever and rigours. Mr A was commenced on antibiotics, and the symptoms resolved quickly. He was discharged the following day, after review by Dr C, who arranged for Mr A to be followed up in the surgical outpatient clinic.
128. On 4 Month4, when Dr C reviewed Mr A in the surgical outpatient clinic, he recommended that Mr A have an open operation. Dr C said he told Mr A that an open operation would be more significant for him than a laparoscopic approach because of his age and co-morbidities. Dr C said he told Mr A that the potential complications of bleeding, infection and potential damage to the CBD would still exist with open surgery, but that he did not foresee any major problems with the surgery.
129. Dr C said he advised Mr A that, in view of his age, an alternative was to do nothing in the hope that any further stones reaching the common bile duct would pass through the sphincterotomy, but there was a chance that acute cholecystitis and even acute cholangitis could occur without surgery. Dr C said Mr A was adamant that he did not want a reoccurrence of his pain and wanted to proceed with surgery rather than adopt a “wait and see” approach to reduce his ongoing discomfort and to prevent further recurrent episodes of sepsis. Dr C further stated that he believed that Mr A understood the risks of surgery, and that Mr A had carefully considered the surgical option and attendant risks.
130. Dr C stated that, although he did not document the full discussion of the options and risks, he believes they were fully discussed with Mr A and his wife, who was present. In contrast, Mrs A stated to the Police that she did not attend any preoperative appointments with Mr A, and recalls meeting Dr C for the first time on the day of the surgery. Mr A’s son advised HDC that he visited his father on the evening before the surgery and that his father told him he was having gallbladder surgery the following day to relieve his pain. Mr A’s son was unable to advise whether his mother was present during that conversation or whether he had been told that she was present at the preoperative consultation.
131. Given Mrs A’s current illness, I am not in a position to make a finding as to whether the discussion that Dr C said happened at the preoperative appointment did take place. However, I consider that in these circumstances, given Mr A’s age and co-morbidities, Dr C should have been particularly careful about documenting the discussion with him. In response to the provisional opinion, Dr C stated: “The fact that I had discussed the two surgical options with [Mr A] was specifically referred to in my letter to [Dr R] dated 5 [Month4].” However, I note that the letter states: “[H]e is therefore going to be booked for an open cholecystectomy with a cholangiogram to check the patency of the common bile duct.” There is no mention in the letter of the information provided to Mr A about his options, or that any particular risks were discussed with him.
132. On 24 Month5 2012, Mr A signed a consent form listing the possible risks of the procedure as “bleeding/infection CBD inj/recurrent hernia”. There is no further documentation, from earlier consultations or otherwise, of any other particular risks or options having been discussed with Mr A.

133. Dr C accepts that he should have documented the full discussion with Mr A. I agree. This Office has frequently emphasised the importance of record-keeping,³⁹ and that health professionals whose evidence is based solely on their subsequent recollections (in the absence of written records offering definitive proof) may find their evidence discounted. At the time of Mr A's surgery Dr C was under a voluntary agreement with the MCNZ not to undertake laparoscopic cholecystectomies until completion of the PAC review. Dr C's laparoscopic technique was to be reviewed, not his ability to undertake elective open operations. I note that Dr C did not discuss with Mr A the voluntary restrictions on his practice. In response to my provisional opinion, Dr C submitted that at no time was he under formal conditions imposed by the MCNZ, and it did not cross his mind to advise Mr A that he was not in a position to offer laparoscopic surgery. He also noted that NMDHB did not require him to inform patients of his voluntary agreement with it and the MCNZ. Dr C said: "In the absence of not being able to point to a specific legal, professional or ethical obligation to which [he] was not complying [he] has taken 'all reasonable actions in the circumstances' to give effect to the rights, and to comply with the duties in the Code."
134. This Office has previously stated:⁴⁰

"Other types of information a reasonable patient may expect to receive include the risk of having a procedure performed at a certain location (for example, where fewer back-up services are available) or specific relevant information about having a particular provider perform the proposed procedure (for example, where the provider has limited experience in performing that procedure, or the provider's practice in that area has been restricted).

Providers have a duty to provide balanced and fair information about the options available to a patient and to subordinate any private interests to the interests of the patient in making informed decisions about their treatment. Providers must take care not to present patients with unbalanced explanations of their condition or options to support their treatment preferences.

The fulfilment of this duty not only respects patient autonomy but also fosters professionalism. One of the fundamental principles of professionalism is the recognition of one's responsibilities as a health practitioner, and of the obligation to place the interests of the patient above those of the doctor. The obligation to provide information — such as information about relevant restrictions on practice — is not intended to place an undue burden on the provider but to support a culture where patients' rights and medical professionalism are protected.

In my view, the obligation to provide information about practice restrictions is neither unreasonable nor unrealistic. I see no practical reasons why the delivery of information about practice restrictions, with a careful explanation of the circumstances and with appropriate support available, would necessarily preclude a patient from choosing to proceed with surgery performed by that provider. A

³⁹ Opinion 10HDC00855 (April 2013) available at www.hdc.org.nz.

⁴⁰ Opinion 03HDC19128, available at www.hdc.org.nz.

provider should not underestimate the impact that openness and candour can have on the doctor–patient relationship. Studies in relation to open disclosure of adverse medical events support this view. However, the ultimate decision whether to proceed with surgery by that provider is the patient’s.”

135. I remain of the view that a reasonable consumer in Mr A’s circumstances would expect to receive relevant information about restrictions on his surgeon’s practice, even if those restrictions arose out of a voluntary agreement. Mr A was elderly with multiple co-morbidities, and the surgery was elective rather than acute. While I accept that Dr C’s practice was not restricted in relation to open cholecystectomies, the restrictions on Dr C’s laparoscopic practice may have been a factor that would have influenced Mr A’s decision to undertake the surgery at that time at the Hospital. Accordingly, I find that Dr C breached Right 6(1) of the Code.

Cholecystectomy — Breach

136. Dr C performed the cholecystectomy first, and then the hernia repair. He stated that he was confident that he had identified the cystic duct, which was cleaned, ligated and divided, and he decided not to undertake the planned operative cholangiogram as a previous ERCP had cleared stones from the CBD, and he did not plan any duct exploration if stones were again present. In addition, he was satisfied that the anatomy had been confirmed.
137. Dr C stated that he used blunt sucker dissection to separate the gallbladder from the liver bed, and that minor bleeding spots on the liver bed were cauterised. My expert advisor, Dr Schroeder, advised that the use of the blunt dissection technique is standard in an open cholecystectomy, and that stripping tissue away from the gallbladder towards the CBD is usually a very safe technique. Dr C stated to NMDHB that no major arteries were seen or felt to be close to the dissection area, and the “deeper pulsation of the presumed Right hepatic branch was palpated prior to division of the cystic artery and the post-dissection operative field was dry”. He said he could not recall ever encountering the left hepatic artery during gallbladder surgery. Dr C said: “A Subtotal Cholecystectomy was not considered as once the subserosal plane was established dissection with a sucker was relatively easy and uneventful.” He said that a small segment of the gallbladder that was attached to the liver bed was removed, but did not result in any bleeding and, at the conclusion of the operation, no significant difficulties or risks to Mr A had been encountered, and he did not anticipate anything but an uncomplicated recovery.
138. Dr C told NMDHB that the surgery was made more difficult owing to fibrosis, but it progressed with few problems and no evidence of major bleeding. Following the second surgery, Dr C completed an operation note in which he stated: “The patient had had a technically more difficult than normal open cholecystectomy in the morning, at which time fibrosis around the Calot’s triangle had caused problems.” Dr C also said that at all times he was aware that the procedure would be “technically more difficult” because of scarring and adhesions from Mr A’s previous surgeries. The operation note for the first surgery does not refer to the operation being difficult.

139. RMO Dr G stated that the operation was technically difficult as the degree of scarring made it difficult for the surgeon to free up the necessary pieces of anatomy for removal, and freeing the adhesions took considerable time. Dr G said that he recalls that it was a relatively bloody operation, and the degree of bloody ooze at the conclusion of the surgery was at the upper end of normal, but there was no sign of arterial bleeding.
140. The pathologist, Dr I, found that the initial source of the blood loss was from the left hepatic artery, which appeared to have been damaged during the cholecystectomy. The right hepatic artery was undamaged. In response to my provisional opinion, Dr C acknowledged that “something happened during the first operation to cause the left hepatic artery to bleed”. He believes the bleeding from the left hepatic artery may have resulted from avulsion of an aberrant cystic artery, but acknowledged that “an instrument may have been inadvertently pushed down to the area, perhaps during the process of ligating and dividing the cystic artery. If that were the case then this is deeply regretted and the result was catastrophic.”
141. Dr Schroeder advised that although Dr C thought that the dissection was proceeding normally, he failed to recognise that it was going beyond the normal limits. Dr Schroeder stated that using a blunt dissection technique requires knowledge of the local anatomy in the individual patient, and if that cannot be safely confirmed, a subtotal cholecystectomy should be performed. Dr C accepts that, in hindsight, a subtotal cholecystectomy would have been preferable in Mr A’s case. However, in response to the provisional opinion, Dr C asserted that he correctly identified Mr A’s anatomy. He said he knew where the right hepatic artery and major bile ducts “should be” and avoided damage to those structures. He stated that he “palpated the (presumed right) hepatic vessel at the medial limit to [his] dissection prior to ligating the cystic artery”.
142. I have considered Dr C’s submissions in response to the provisional opinion. However, I accept Dr Schroeder’s advice that Dr C should have exercised more care, and that the decision to proceed with a full cholecystectomy in this situation would be viewed by most surgeons with moderate disapproval. I remain of the view that, in these circumstances, Dr C’s decision to proceed with a full cholecystectomy meant that he did not provide services to Mr A with reasonable care and skill. Accordingly, Dr C breached Right 4(1) of the Code.

Delayed decision to re-operate — Breach

143. The cholecystectomy operation concluded at approximately 12.45pm, and Mr A was transferred to recovery for initial routine postoperative care. At that time, Mr A was rousing and coughing and partially obstructing, so the nurses turned him on his side and connected the PCA. Mr A’s vital signs were within the normal range.
144. At 1.35pm Mr A’s blood pressure dropped. By 2pm Mr A’s condition had worsened, and Dr P asked RN E to contact Dr C. By this time, Mr A’s haemoglobin had decreased from 123gm/l preoperatively to 70gm/l. Dr P charted two units of blood, and the blood transfusion commenced at 2.30pm. Dr C was notified of Mr A’s low blood pressure and haemoglobin at 2.30pm, nearly an hour after its onset. Dr C

arrived at 2.35pm, examined Mr A's abdomen, and checked the output from the drain. He said that Mr A was comfortable with a soft, non-distended abdomen, responsive, with a pulse of 75bpm and a blood pressure of 70mmHg systolic, "which was a worry". Dr C was unsure whether Mr A's condition was caused by a "true bleed", because the drain contained only 30ml of blood.

145. Dr Schroeder advised that lack of blood in a drain is never a good indicator as to whether bleeding is occurring, as drains can easily get blocked. He stated: "The haemacue of 70 after a preop Hb of 123 gm/l was a very good indicator that bleeding was occurring as a cause for the hypotension." Dr C's instructions to nursing staff were to continue to observe Mr A and, if his blood pressure did not improve with the blood transfusion, Dr C would order an ultrasound scan to exclude bleeding. At 2.55pm Mr A's blood pressure dropped to 69/40mmHg, and RN E noted that there was 200ml of fluid in the drain. She was concerned that Mr A was bleeding, so at 3.00pm she contacted Dr C again.
146. Sometime around 3pm Dr C contacted Dr G and asked him to order an urgent ultrasound for Mr A. At that stage, Mr A had a blood pressure of only 70mmHg systolic. The ultrasonographer told Dr G that Mr A had a 20cm collection of blood above his liver, and well over one litre of blood within his abdomen.
147. Dr G telephoned Dr C with the results, and Dr C asked that the theatre team be prepared, as he was coming in to re-operate and control the bleeding. The surgery did not begin until 4.15pm. Dr C accepts that he could have been more proactive once he was advised about the drop in blood pressure, but said he wanted to be certain that Mr A would not improve after the blood transfusion was given, in light of the implications of taking an elderly man back to theatre. In response to my provisional opinion, Dr C stated that he wanted Mr A "to receive the full physiological benefit of vigorous resuscitation with blood (only recently commenced at 2.30pm)". Dr Schroeder advised that once Mr A's blood pressure had shown a sustained lack of response to fluid, it was time to return him to theatre as soon as possible. Dr Schroeder stated: "[T]he ultrasound was unnecessary in this scenario and probably delayed things more. This delay and the prolonged hypotension would be viewed by peers as a major departure from acceptable care." In response to my provisional opinion, Dr C said that, with hindsight, the time taken to arrange and perform an ultrasound proved to be unnecessary but, at the time, it helped cement his decision to embark on the high risks of a major repeat operation.
148. I accept Dr Schroeder's advice and consider that the delay, including that caused by obtaining an ultrasound scan, was poor care and placed Mr A at risk of harm. Accordingly, I find that Dr C breached Right 4(4) of the Code.

Laparotomy — Breach

149. Dr C stated that during the second surgery the bleed appeared to be coming from an area on the medial side of the common hepatic artery or the right hepatic artery. As he did not consider that he had encountered any of the hepatic vessels or a significant haemorrhage during the initial surgery, he believed the bleeding was likely due to an avulsion of the cystic artery stump. In response to my provisional opinion, Dr C said

that, upon reopening Mr A's abdomen, blood was coming from the medial border of his earlier dissection. A small "fountain" was coming from the medial area of the right hepatic artery, and he believed that vessel was the source of the blood. He said he "never imagined that the origin could be the even deeper left hepatic branch and further dissection was required to isolate the bleeding source".

150. At post mortem Dr I discovered that the right hepatic artery was patent, and it was the left hepatic artery that had most likely been damaged during the cholecystectomy.
151. Dr D stated that, during the second surgery, the cystic artery was tied and ligated, and two attempts were made to repair the vascular injury on the right side of the porta hepatis. Dr C said that his initial attempts at a vascular repair made the situation worse because of the fragile nature of the vessel wall.
152. Dr Schroeder stated: "[I]t is unfair to be critical of the attempts to stop the bleeding without being present, and it does sound like a very difficult access."
153. As the surgical attempts to control the bleeding had been unsuccessful, a soft bowel clamp was placed around the portal triad to slow the bleeding (Pringle manoeuvre) but it resulted in imperfect vascular control, and the clamp interfered with access to the bleeding area.
154. It was then decided to fashion a Rummel tourniquet from vascular tape and a cut-down catheter. Dr C stated to the Police that neither he nor Dr D had used the Rummel tourniquet technique previously. Dr C said he used angled forceps to bluntly negotiate a passage through the posterior wall of the omentum, and then passed the soft vascular tape around the structures of the portal triad. Dr C said he had to estimate the positions of the portal triad structures within the thickened tissue, as they could not be palpated. Having managed to bluntly dissect out a track through the thickened ligament with one hand, he was able to "retrieve the suitably positioned suture thread and withdraw it through the track". Dr C said that the visibility was difficult, and the soft bowel clamp interfered with his operative view.
155. Dr I found at post mortem that the tape from the Rummel tourniquet had been passed through the wall of Mr A's portal vein and had missed his hepatic artery. When the device was released, the position of the portal sling in the wall of the vein was almost certainly the source of the significant further blood loss resulting in Mr A's death from hypovolaemic shock secondary to ongoing blood loss.
156. Dr Schroeder advised that placing a tape around the portal structures is usually straightforward, and stated that "passing the tape **through** the portal vein, the preterminal event, does seem hard to accept, and of course would be met with severe disapproval by other surgeons". In response to my provisional opinion, Dr C said that the decision to undertake the Rummel tourniquet was a matter of last resort, and a general surgeon could not be expected to be familiar with the technique. It was a measure of "pure desperation and the damage to the Portal Vein was unintentional and deeply regretted".

157. In my view, despite the difficulties he encountered, Dr C made a serious error when he passed the tape through the wall of Mr A's portal vein. Accordingly, I find that, despite the difficulties he encountered, Dr C failed to provide services with reasonable care and skill to Mr A during the second surgery and breached Right 4(1) of the Code.

Summary

158. Mr A was elderly, with multiple co-morbidities, and his surgery was elective rather than acute. A reasonable consumer in Mr A's circumstances would expect to receive information about relevant restrictions on his surgeon's practice. This information might have influenced Mr A's decision to undertake the surgery at that time and place. Accordingly, I find that Dr C breached Right 6(1) of the Code.
159. Dr C did not provide services to Mr A with reasonable care and skill during the first surgery when he decided to proceed with a full cholecystectomy. Accordingly, Dr C breached Right 4(1) of the Code.
160. Following the surgery, Mr A had prolonged hypotension. The delay before re-operating, including that caused by obtaining an ultrasound scan, was poor care and placed Mr A at risk of harm. Accordingly, I find that Dr C breached Right 4(4) of the Code.
161. Dr C made a serious error when he passed the tape through the wall of Mr A's portal vein during the second surgery. Dr C failed to provide services to Mr A with reasonable care and skill in this second surgery and, accordingly, breached Right 4(1) of the Code.

Opinion: Nelson Marlborough District Health Board

Introduction

162. District health boards are responsible for the operation of clinical services within public hospitals, and can be held responsible for any service-level failures.⁴¹ This responsibility includes district health boards ensuring that the systems and culture necessary for the safe operation of its hospitals are established, well understood, and implemented. In this case, I am concerned that poor judgement was demonstrated by several staff involved in Mr A's care, which contributed to his receiving suboptimal services at the Hospital. I consider that NMDHB bears ultimate responsibility for this. My concerns in this regard are discussed further below.

Management of Dr C — Other comment

163. Dr C commenced work as a general surgeon at the Hospital in 2010. Two patients who were operated on by Dr C at the Hospital in late 2010 and early 2011 were transferred to DHB2 with CBD injuries following laparoscopic cholecystectomies. In early 2011, a patient died following a postoperative haemorrhage following an open

⁴¹ See Opinion 10HDC00703 (September 2012), available at www.hdc.org.nz.

cholecystectomy performed by Dr C. Dr C agreed to cease performing laparoscopic cholecystectomies pending an independent review of his performance of that procedure by surgical peers in 2011. Following the review, Dr C resumed performing laparoscopic cholecystectomies.

164. In Month 1 2012, a patient suffered a diathermy injury during a laparoscopic cholecystectomy, and Dr C again stood down from all laparoscopic surgery, this time pending an MCNZ PAC review. Dr C conducted the surgery on Mr A during this period of stand-down.
165. I have carefully considered whether it was appropriate for NMDHB to permit Dr C to continue to perform surgery in light of his known history of adverse events. Dr Schroeder advised me that NMDHB knew they had a surgeon who had skill deficiencies in performing laparoscopic cholecystectomies and, in his view, had addressed those issues in a way that was appropriate and reasonable.
166. Dr Schroeder stated that the decision to permit Dr C to perform an open cholecystectomy at the Hospital was appropriate, as experienced surgeons, anaesthetists, staff and resources were available, and the operation is performed regularly at the hospital. Dr Schroeder advised that “a cholecystectomy is a common operation, but can have problems, but these are usually manageable with basic equipment and a reasonable and usual level of surgical skill. Whilst in retrospect this was not the case, it would not have been predictable from any patient factor.”
167. Dr Schroeder said that, unless there had been concerns raised about Dr C’s judgement and his performance of surgery other than laparoscopic cholecystectomies, NMDHB would have had no reason to expect that a senior, well trained surgeon would have issues with what is a very common operation. Although I consider that the concerns with Dr C’s performance should have been seen as a warning signal, in all the circumstances, I do not consider that NMDHB breached the Code by allowing Dr C to continue performing surgery other than laparoscopic cholecystectomies.

Response to Mr A’s deterioration — Breach

168. Following his first surgery, Mr A was transferred to recovery for routine postoperative care. His vital signs were initially within the normal range. However, at 1.35pm he showed a drop in blood pressure, and the drain output began to increase. His blood pressure was 70/49mmHg, two minutes later 78/44mmHg and, after a further two minutes, 90/52mmHg.
169. At 1.45pm, RN L handed over to RN E, who took a further blood pressure reading of 89/44mmHg, although Mr A’s other vital observations were within normal post-anaesthetic ranges. RN E contacted Dr P and reported that Mr A’s blood pressure had decreased and that he was requiring more intravenous fluids to maintain his blood pressure.
170. At 2.05pm Mr A’s blood pressure dropped further to 76/43mmHg. Mr A’s haemoglobin had decreased from 124 preoperatively to 70. Dr P charted two litres of blood, with one to be given immediately and one over an hour. Dr P requested that

RN E contact Dr C. At 2.30pm Dr P contacted RN E again, but gave no new instructions. By that stage, Mr A's blood pressure was 75/45mmHg.

171. Dr C arrived at 2.35pm, examined Mr A, and instructed the nurses to continue observing Mr A and to call him (Dr C) if Mr A's blood pressure did not improve with the blood transfusion, so that Dr C could arrange an ultrasound to exclude bleeding. Mr A's blood pressure continued to be low but did not drop further.
172. At 2.55pm Mr A's blood pressure dropped to 69/40mmHg, and his drain contained 200ml of blood. RN E contacted Dr C again, and he asked Dr G to organise an ultrasound. Dr G accompanied Mr A to the radiology department for his scan because he had a systolic blood pressure of only 70mmHg. During the ultrasound, Mr A's systolic blood pressure dropped into the 50s.
173. The ultrasound scan showed that Mr A had a 20cm collection of blood above his liver and well over a litre of blood within his abdomen. Dr C decided to re-operate to control the bleeding. The laparotomy began at 4.15pm.
174. Dr Schroeder advised that although there was regular recording of Mr A's blood pressure, pulse rate and oxygen saturations, there was a very slow response to his abnormal observations by the team involved. Dr Schroeder noted that it was an hour after the first low blood pressure recording that Dr C reviewed Mr A. By that time, Mr A had had a systolic blood pressure of 70mmHg for 25 minutes.
175. Dr Schroeder stated:

“[O]ld patients do not tolerate hypotension well, especially when anaemic. Whilst it would be good to avoid a return to theatre, fluid resuscitation must be adequate to get the blood pressure over at least 90 systolic, whilst things declare themselves. A sustained low blood pressure has a cause, and it needs to be elucidated. I can see no evidence in the notes of other causes (e.g. cardiac) being investigated. This lack of response from an elderly patient with prolonged hypotension would be seen as a major departure from acceptable care.”

176. I agree with Dr Schroeder that once Mr A had shown a lack of sustained response to fluid resuscitation he should have been returned to theatre as soon as possible. Dr Schroeder noted that Mr A spent 90 minutes with a dangerously low blood pressure, which would have had effects on his heart, kidneys and central nervous system.
177. Dr Schroeder noted that the whole surgical team seemed to have seen Mr A's prolonged hypotension as a concerning sign, but not one that required rapid treatment. Dr Schroeder considered that Mr A's terminal cardiac event could well have been precipitated by the prolonged hypotension, and observed:

“[T]here has been a trend in health care in the last ten years to encourage all members of the medical team to seek the best treatment for the patient, rather than just following orders as they are given. This culture of early warning and pushing concerns by any member of the care team is apparent in all hospitals that I work

in, and is to be applauded. It may well have meant a more rapid resuscitation and earlier return to theatre in this case.”

178. In my view, the team performance in this case was suboptimal. Every member of the clinical team had a responsibility to recognise the risk that Mr A’s prolonged low blood pressure presented, and each had an individual responsibility to step up and advocate for Mr A. It was not sufficient to wait for Dr C to make the decision to re-operate. NMDHB is responsible for the lack of critical thinking and proactivity of its staff. Accordingly, I consider that NMDHB failed to provide services to Mr A in a manner that minimised his risk of harm, and so breached Right 4(4) of the Code.

Recommendations

179. I recommend that Dr C:
- a) Provide a written apology to Mr A’s family. The apology is to be sent to HDC within three weeks of the date of this report, for forwarding to Mr A’s family.
 - b) In the event that Dr C returns to practice, he should review his practice when operating on patients with severe co-morbidities, and advise the Commissioner of what changes he has made or intends to make.
180. I am aware that Medical Council of New Zealand processes are on-going in relation to Dr C, and I have asked MCNZ to keep me updated.
181. I recommend that Nelson Marlborough DHB:
- a) Provide a written apology to Mr A’s family. The apology is to be sent to HDC within three weeks of the date of this report, for forwarding to Mr A’s family.
 - b) Develop a process to ensure that complex patients are discussed by a multidisciplinary team prior to undergoing surgery.
 - c) Include in its training and induction for all staff information that the DHB’s practice is that asking questions and reporting concerns is expected and accepted from all members of the multidisciplinary team. The DHB should supply to HDC a copy of the training and induction material, and report on the steps taken to ensure there is a culture that encourages these actions.
 - d) Report on final decisions relating to surgical services and ICU at the Hospital, including staffing arrangements. This report is to include protocols relating to access to senior medical staff by less senior medical staff.
 - e) Report on decision-making protocols relating to the transfer of complex patients to other hospitals.
182. I recommend that the National Health Board review the implementation of changes following the “Report from the Top of the South Review Team to the Nelson Marlborough District Health Board” (January 2014), six months after the amended arrangements are in place.

Follow-up actions

183. • 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.
- A copy of this report will be sent to the Coroner and to the Police.
 - A copy of this report with details identifying the parties removed, except the expert who advised on this case and Nelson Marlborough DHB, will be sent to the Medical Council of New Zealand, and it will be advised of Dr C's name.
 - A copy of this report with details identifying the parties removed, except the expert who advised on this case and Nelson Marlborough DHB, will be sent to the Royal Australasian College of Surgeons, and it will be advised of Dr C's name.
 - A copy of this report with details identifying the parties removed, except the expert who advised on this case and Nelson Marlborough DHB, will be sent to DHB NZ (shared services) and the Health Quality and Safety Commission, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.
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Addendum

The Director of Proceedings decided not to institute a proceeding.

Appendix A — Independent expert advice to the Commissioner

The following expert advice was obtained from Dr David Schroeder:

- “1. I have been asked to provide an opinion to the Health and Disability Commissioner on case number C12HDC01488. I have read and agreed to follow the Commissioner’s guidelines for independent advisers.
2. My name is David Schroeder. My qualifications are MBChB (1979) FRACS (1987). I have been a consultant surgeon operating in the Waikato and Wellington areas for 23 years. Over the initial 12 years I was a hepatobiliary surgeon at Waikato Hospital. I have also performed over 1000 laparoscopic cholecystectomies as well as hundreds of open cholecystectomies. I have been called on a number of times to repair common bile ducts damaged at open or laparoscopic cholecystectomy.
3. The referral instructions from the Commissioner are as follows:
To provide independent expert advice about whether [Dr C] and Nelson Marlborough DHB provided an appropriate standard of care to [Mr A].

Background

[Mr A]

On 24 [Month5] 2012, [Mr A] (age 80) underwent an elective open cholecystectomy and incisional hernia repair at [the Hospital]. The surgery was performed by [Dr C].

[Mr A’s] condition deteriorated postoperatively and he was returned to theatre the same day for an emergency laparotomy due to postoperative bleeding. The bleeding was unable to be controlled and [Mr A] died in theatre that day.

The post mortem examination was performed in conjunction with two gastrointestinal surgeons from Nelson Marlborough DHB. The main cause of death was identified as hypovolemic shock secondary to ongoing blood loss. The main cause of the bleeding was damage to the left hepatic artery and the portal vein.

[Dr C]

[Dr C] commenced work as a general surgeon at [the Hospital] in 2010.

[In 2011], [the Clinical Director at DHB2] wrote to Nelson Marlborough DHB’s [Executive Clinical Director Specialist] after concerns were raised in relation to two patients who had been transferred to [DHB2] with bile duct injuries. These patients had been operated on by [Dr C] at [the Hospital] in [late 2010 and early 2011]. Dr F advised Nelson Marlborough DHB of its own protocol for surgeons who have such issues and offered further discussion. Nelson Marlborough DHB requested that [Dr C] cease all laparoscopic surgery, while a supervision and education package was put in place in conjunction with [DHB2].

In [2011], [a surgeon from DHB2] observed [Dr C] performing two surgeries, having previously viewed several videos of [Dr C] performing cholecystectomies. [Dr C] was also observed by Nelson Marlborough DHB surgeons. [In 2011], [NMDHB's Executive Clinical Director Specialist] wrote to [Dr C], summarising the supervisors' observations and recommending that [Dr C] return to operating independently, including laparoscopic cholecystectomies, with continued video recordings for six months.

In 2011, HDC advised MCNZ that it had received three complaints in relation to [Dr C]. (Two of these complaints related to the aforementioned patients transferred to [DHB2] following bile duct injuries.) [The following week], MCNZ advised [Dr C] that it was considering referring him for a competence review.

On 23 [Month1] 2012, a third patient operated on by [Dr C] was transferred to [DHB2] with a bile duct injury. On 25 [Month1] 2012, [the surgeon from DHB2] telephoned [Dr C] to convey his expectation that [Dr C] consider stopping his cholecystectomy practice. On 27 [Month1] 2012, [NMDHB's Executive Clinical Director Specialist] wrote to [Dr C], formally recording his support for [Dr C's] voluntary decision to cease laparoscopic cholecystectomies, pending the outcome of the review process.

On 1 [Month3] 2012, MCNZ advised [Dr C] that he was required to undergo a performance assessment, and confirmed [Dr C's] undertaking to cease laparoscopic cholecystectomies. On 9 [Month5] 2012, MCNZ advised [Dr C] that he may perform laparoscopic cholecystectomies under supervision, to refresh his skills prior to performance assessment scheduled for [later in] 2012.

On 24 [Month5] 2012, [Dr C] operated on [Mr A].

Other matters

Please note that matters relating to [Mr A's] death are currently being investigated by the Police.

Complaint

[Mr B] has complained to HDC on behalf of [Mr A's] estate and widow, [Mrs A]. [Mr B] states that they are concerned primarily with [the Hospital] and Nelson Marlborough DHB, rather than individual clinicians. Their concerns include:

- the events at the time of [Mr A's] first operation on 24 [Month5] 2012
- the response to the complications that arose following that operation
- communication with and support to the family following [Mr A's] death.

Expert Advice Required

1. Please comment on the standard of care provided to [Mr A].
Please ensure the following matters are addressed in your report:

- a) [Mr A's] preoperative surgical assessment and diagnosis;
 - b) the decision to perform an open cholecystectomy and incisional hernia repair;
 - c) the decision to perform the surgery at [the Hospital];
 - d) [Dr C's] discussion with [Mr A] regarding the risks of surgery, as documented in the clinical records and outlined in [Dr C's] report;
 - e) the standard of care provided during the first surgery;
 - f) the monitoring of [Mr A] following the first operation;
 - g) the timeliness of the decision to return [Mr A] to theatre;
 - h) the standard of care provided during the second surgery.
2. As outlined above, at the time of [Mr A's] operation, [Dr C] was under a voluntary agreement with MCNZ and Nelson Marlborough DHB not to undertake laparoscopic cholecystectomy surgery unsupervised until the completion of a performance assessment review. In these circumstances, please comment on whether you consider it was reasonable for [Dr C] to operate on [Mr A] on 24 [Month5] 2012, including the respective responsibilities of [Dr C] and Nelson Marlborough DHB.
 3. In your view, are there any particular organisational or systemic issues that are relevant to this case? If so, please explain.
 4. Are there any aspects of the care provided by [Dr C] and/or Nelson Marlborough DHB that you consider warrant additional comment? If so, please explain.

If, in answering any of the above questions, you believe that [Dr C] and/or Nelson Marlborough DHB did not provide an appropriate standard of care, please indicate the severity of the departure from that standard.

To assist you on this last point, I note that some experts approach the question by considering whether the providers' peers would view the conduct with mild, moderate, or severe disapproval.

The Sources that I have been provided with to answer the complaint are as follows:

Clinical notes

Letter of complaint

HDC notification of investigation

Letter from Nelson Marlborough DHB dated [2013], with enclosures including:

- a) Information regarding [Dr C's] training, recruitment, and credentialling
- b) Report from [Dr C] (undated)*
- c) Correspondence from DHB to [Dr C] regarding surgical competence, additional training and support, and conditions on practice
- d) Nelson Marlborough DHB's sentinel event report, dated [2013]

5. Information from [DHB2]:

- a) Letter from [DHB2 surgeon], dated [2012] (excluding enclosures which are either included under tab 4.c) above or which are clinical records for other patients)

Information from the NZ Police, including:

- a) [Dr C's] written responses to Police questions
- b) [Dr C's] response to draft SER
- c) Provisional report after post-mortem examination
- d) Written statement from [Mrs A]
- e) Statements from other DHB staff

* In light of the Police investigation, [Dr C] has yet to respond to HDC's notification of investigation.

Expert advice

1. Please comment on the standard of care provided to [Mr A].

- a) The preoperative surgical assessment of [Mr A] was entirely appropriate. The diagnosis was very clear. In patients who have gallstones in the gallbladder, following an ERCP, and clearance of the duct, there is a 60% chance of recurrent cholecystitis. It was evident that [Mr A] had had an episode of cholecystitis and in that situation it is appropriate to assess medically and proceed to surgery if the patient was fit for the procedure, understanding of the complications and willing to proceed. [Dr C] has documented the risks, and that these were discussed with [Mr A] and apparently with his wife. He was assessed as anaesthetic grade ASA 2 and therefore it was appropriate to proceed to surgery.
- b) The decision to proceed to open surgery rather than laparoscopic surgery has to be made by the surgeon. In this situation, [Dr C] was not able to offer laparoscopic surgery but there was also the need to perform a hernia repair at the same time which was probably better done open, and therefore the choice of open cholecystectomy is acceptable. Other surgeons may have performed a laparoscopic cholecystectomy and a laparoscopic hernia repair but both choices are reasonable.
- c) The decision to perform an open cholecystectomy at [the Hospital] would seem appropriate in that experienced surgeons, anaesthetists, staff and resources are available and these operations are regularly done at the hospital. A cholecystectomy is a common operation, but can have problems, but these are usually manageable with basic equipment and a reasonable and usual level of surgical skill. Whilst in retrospect this was not the case, it would not have been predictable from any patient factor.

- d) [Dr C] seems to have been careful with his discussion with [Mr A] regarding the risk of surgery as outlined in his report. He explained that an open operation would be more significant and that there were significant risks associated to bleeding, infection and potential damage to the common bile duct. He was also given a very reasonable expectation of a one-week stay in hospital. He certainly thinks that he explained this to [Mrs A] too, at the clinic consultation, but she doesn't agree. There is no requirement to make sure any other member of the family understands the procedure if the patient is able to make the decision themselves, and has agreed to the surgery.
- e) The standard of care provided during the first surgery can be ascertained from the reported operation note, but also from the subsequent events. The use of the blunt dissection technique is standard in an open cholecystectomy. Stripping tissue away from the gallbladder toward the common bile duct is usually a very safe technique. At the end of the first procedure, the surgical area appeared dry, and recordings were initially stable, although the house-surgeon's report of a 'bloody operation' is at variance with [Dr C's] report of a satisfactory blood loss and dry field at the end. There is the option of a subtotal cholecystectomy, but the decision by the surgeon at the time was that as the dissection appeared to be progressing safely, it was unnecessary. In fact, a small piece of the posterior wall does appear to have been left on the liver. This is of no concern, but does reflect a history of significant inflammation.

The concern comes with the realisation that the subsequent bleeding was coming from the **left hepatic artery**. This means that although [Dr C] thought that the dissection was going adequately, in reality the dissection was going beyond the normal limits, and this was unrecognised. Using a blunt dissection technique requires knowledge of the local anatomy in the individual patient. If this can not be safely confirmed, a subtotal cholecystectomy should be performed. This would be especially true with a self-knowledge of three recent injuries to the common bile duct. All injuries to the common bile duct occur because the surgeon does not realise the anatomy (which may be abnormal in this area quite commonly, and even more so after repeated inflammation), and so even more care should have been exercised. The decision to proceed with a full cholecystectomy in this situation, with this history and uncertain anatomy, would be viewed by most surgeons with moderate disapproval.

- f) I do have concerns about the monitoring of [Mr A] after the return to the recovery room, inasmuch as there was a tardiness of action in response to the monitoring. The regular recording of the blood pressure, pulse rate and oxygen saturations was performed, but there was a very slow response by the team involved. [Mr A] returned to recovery at 1 pm. His first low blood pressure was noted at 1.30 and the team was notified. Fluid resuscitation followed with a very temporary rise in BP. The haemacue of 70 after a

preop Hb of 123 gm/l was a very good indicator that bleeding was occurring as a cause for the hypotension. Lack of blood in a drain is never a good indicator that bleeding is going on — drains can get blocked easily. An hour after the first low blood pressure, the patient was reviewed by the surgeon. At this point he had had a blood pressure of 70 systolic for 25 mins. Old patients do not tolerate hypotension well, especially when anaemic. Whilst it would be good to avoid a return to theatre, fluid resuscitation must be adequate to get the blood pressure over at least 90 systolic, whilst things declare themselves. A sustained low blood pressure has a cause, and it needs to be elucidated. I can see no evidence in the notes of other causes (e.g. cardiac) being investigated. This lack of response to an elderly patient with prolonged hypotension would be seen as a major departure from acceptable care.

- g) Once the patient had shown a lack of sustained response to fluid, it was time to return to theatre as soon as possible, but even if there was a delay, the blood pressure should still have been brought up as much as possible. The blood pressure did not reach 90 systolic until 1650 hrs, so the patient had spent 90 mins with a dangerously low blood pressure, with obvious affects on the heart, kidneys and central nervous system. The ultrasound was unnecessary in this scenario, and probably delayed things more. This delay and the prolonged hypotension would be viewed by peers as a major departure from acceptable care.
- h) Once the decision to return to theatre had been made, it was appropriate to enlist the help of another surgeon. It is unfair to be critical of the attempts to stop the bleeding without being present, and it does sound like a very difficult access. The use of a Pringle manoeuvre was appropriate. Occluding the left hepatic artery with sutures also would not necessarily have caused any problems long term as the liver may get sufficient oxygen from the portal vein. This also may have been the only way of controlling the bleeding. However the iatrogenic damage to the portal vein is a major concern.

Usually placing a tape around the portal structures is straightforward and can be safely done by feeling the important structures and the softer filmy tissue medial to these structures, then passing an instrument atraumatically behind to grasp a silastic vessel loop. I accept that [Dr C] is not a hepatobiliary surgeon, but I can not ignore the fact that in his CV he claims to have been a course director for [a relevant] teaching programme and was involved in trauma surgery at his previous role as Head of the Divisions of General, Vascular and Thoracic surgery at [an overseas hospital]. A portal occlusive tape is a very useful and basic tool in trauma surgery. In light of this, passing the tape **through** the portal vein, the preterminal event, does seem hard to accept, and of course would be met with severe disapproval by other surgeons.

It was appropriate to ask for advice and help from [DHB3], and the advice was also correct: bleeding must be controlled before transfer. The anaesthetist was resuscitating as best he could, and did manage to get the blood pressure up to 130 systolic briefly, but the ongoing bleeding made it impossible to maintain, and the cardiac event was probably the final event.

2. I understand that [Dr C] had voluntarily stood down from laparoscopic cholecystectomy unsupervised. The board and [Dr C] seemed to have been working through this in a responsible and progressive way, with the long-term aim of upskilling [Dr C] to a safe surgical point. At no time in this discussion can I see concerns raised about his general surgical ability, or his operative judgement.

Open cholecystectomy can be difficult, and damage to the ducts can occur, albeit at a lower frequency to laparoscopic cholecystectomy. However, because one can always perform a subtotal cholecystectomy, it is generally thought to be safer. Unless there were other issues that have not been presented, it would seem to have been reasonable for an open cholecystectomy to be performed by a senior surgeon with good support of specialist anaesthetist and blood bank facilities, despite previous problems with laparoscopic surgery.

3. The question of organisational or systemic issues in this case is valid in light of the outcome and the comments I have made above. The Nelson Marlborough DHB knew that they had a surgeon who had skill deficiencies in laparoscopic cholecystectomy, and they addressed those issues in a way that seems appropriate and reasonable. Unless there had been concerns raised about judgement and other surgery, they would have no reason to expect that a senior well trained surgeon would have issues with what is a very common operation. However the rash of cases could have invited a more thorough investigation into [Dr C's] whole practice. This may have been done, but not included in the information given.

The issues raised around the operating room environment do seem to have related only to laparoscopic equipment and assistants. There is nothing in the information I have been given to know whether the deficiencies were addressed or not.

4. One other aspect of the general care of concern is that the whole surgical team seemed to have tolerated [Mr A's] prolonged hypotension as a concerning sign, but not one that required rapid treatment. Whilst the damage to the portal vein was the main issue, the terminal cardiac event could well have been precipitated by the prolonged hypotension. There has been a trend in health care over the last ten years to encourage all members of the medical team to seek the best treatment for the patient, rather than just following orders as they are given. This culture of early warning and pushing concern by any member of the care team is apparent in all hospitals that I work in, and is to be

applauded. It may well have meant a more rapid resuscitation and earlier return to theatre in this case.

5. Although not specifically mentioned in the 'Expert Advice Required' questions, the original complaint does raise the issue of communication with and support to the family following [Mr A's] death. [Dr C] feels that he did talk to a woman with [Mr A] at his original clinic appointment, says he phoned her about the return to theatre, and that he saw her after the surgery. [Mrs A] claims that her first meeting with [Dr C] was after the death, and that he didn't ring her. I also see that the DHB attempted to contact [Mrs A] for a meeting, both by phone and email. There is no recorded outcome of these attempts. The information provided, being so limited and contradictory, makes it impossible to be able to give a definitive opinion on whether there was any lack of support or communication, but it does look as though the surgeon and hospital have done what would be reasonably expected in terms of communication and support."