

**Consultant Surgeon, Dr C
District Health Board**

**A Report by the
Health and Disability Commissioner**

(Case 18HDC00534)

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Executive summary

1. This report concerns the care provided to a man during a colonoscopy, and his re-admission to hospital for a suspected bowel perforation. The man was transferred to another district health board, where he was managed conservatively with antibiotics, bowel rest, and observation. However, a failure to identify the man's deterioration and sepsis resulted in a missed opportunity for him to receive surgical intervention at an earlier time.
2. The report highlights the need to ensure that assessment of a patient's condition takes into consideration all the information available, including the preceding medical reviews. It also emphasises the importance of critical thinking when re-assessing a patient and reviewing the diagnosis and management plan.

Findings

3. The Commissioner was critical that the man's deterioration was not recognised by the consultant surgeon, and found the consultant surgeon in breach of Right 4(1) of the Code.
4. Regarding the second DHB, the Commissioner was critical of several aspects of care in relation to the delayed medical review, documentation, escalation of care, and communication.
5. The Commissioner was concerned that the surgeon who carried out the colonoscopy did not employ the safest method for removing the large and small polyps found during the procedure.

Recommendations

6. The Commissioner recommended that the consultant surgeon provide a written apology to the family.
7. The Commissioner recommended that the second DHB provide training on documentation to junior staff in the Surgery Department, consider a review of the training provided to junior doctors on escalation following multiple reviews of a patient, and consider developing a guideline for documentation of patient handover.
8. The Commissioner also recommended that the second DHB provide an update on the changes made as a result of these events, including the education provided to relevant staff on decision-making and sepsis, and the development of a sepsis programme, and that the second DHB offer to upskill and mentor the first DHB's endoscopy service in polypectomy technique and assessment of polypectomy sites.
9. The Commissioner recommended that the first DHB provide an update on the changes made as a result of these events, including a procedure to be used when a patient undergoing a colonoscopy is taking anticoagulants; a guideline for the use of either hot or cold snare polypectomy during a colonoscopy; a review of diathermy equipment; and a guideline for the procedure to be used to biopsy polyps in a patient with multiple colonic polyps.

Complaint and investigation

10. The Health and Disability Commissioner (HDC) received a complaint about the services provided to Mr A by a district health board (DHB2). The following issues were identified for investigation:

- *The appropriateness of the care provided to Mr A by Dr C in 2017.*
- *The appropriateness of the care provided to Mr A by DHB2 in 2017.*

11. The following parties were directly involved in the investigation:

Ms B	Daughter/complainant
DHB2	DHB/provider
Dr C	Provider/consultant surgeon

12. Further information was received from:

Dr D	Consultant general surgeon (DHB1)
Dr E	Consultant general and endocrine surgeon (DHB2)
Dr F	General surgeon/ACC clinical advisor
Dr G	Colorectal surgeon
DHB1	DHB/provider
Coroner	
Accident Compensation Corporation (ACC)	

13. Independent expert advice was obtained from a general surgeon, Dr Gerrie (Christoffel) Snyman (Appendix A).
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Information gathered during investigation

Introduction

14. Mr A, aged in his seventies at the time of events, had a significant number of comorbidities¹ including atrial fibrillation (AF — an irregular heartbeat). His bowel was perforated following a colonoscopy² at DHB1. Mr A was transferred to DHB2 for further care, and was managed conservatively with bowel rest and antibiotics. Two days later, his condition deteriorated. An

¹ His medical history included chronic obstructive pulmonary disease (a progressive lung disease), bladder cancer, a stoma, an enlarged artery (stented) in the abdominal area (abdominal aortic aneurysm), kidney stones, and atrial fibrillation (an irregular heartbeat) treated with dabigatran (an anticoagulant) and metoprolol (a beta-blocker).

² A procedure under sedation to review the lining of the large bowel (colon) using a flexible tube that is passed through the rectum and around the colon.

urgent laparotomy³ was performed, but he developed sepsis⁴ and multi-organ failure. Sadly, Mr A died. I extend my condolences to Mr A's family and friends.

Colonoscopy

15. On Day 1,⁵ following a positive result from a bowel screening test,⁶ Mr A underwent a colonoscopy at DHB1 under the care of an endoscopist consultant, Dr D.
16. There are two methods for removing polyps (abnormal growths of tissue) found during a colonoscopy: hot snare polypectomy (HSP)⁷ and cold snare polypectomy (CSP).⁸
17. Multiple polyps of various sizes were found throughout Mr A's colon. Dr D removed 33 polyps using HSP, of which two polyps were 20mm and two were 15mm. Dr D stated that his rationale for using HSP was to try to prevent post-polypectomy bleeding.
18. Dr D recorded that the colonoscopy was performed without difficulty, and that Mr A tolerated the procedure well. Dr D recollected that the colonoscopy took some time because of the number of polyps found, and because they required careful use of the hot snare to prevent bleeding.
19. Mr A was discharged from the hospital that day.

Presentation to DHB1 Emergency Department

20. The following day (Day 2) at 9.37pm, Mr A presented to the Emergency Department (ED) at DHB1 complaining of abdominal pain that had developed that day. His observations were normal, apart from a raised pulse of 112bpm,⁹ and he was admitted for observation and given fluids. Overnight, Mr A was given antibiotics and regular pain relief for worsening pain.
21. Mr A underwent an X-ray, and at 6.50am on Day 3, a radiologist recorded that a chest X-ray showed a large volume of free air under the diaphragm (which suggests that air had escaped from a bowel perforation into the abdomen).
22. Following the X-ray, three clinicians¹⁰ discussed whether Mr A should undergo an urgent laparotomy, but Mr A was considered too high-risk to be managed at DHB1 because of his co-morbidities and the likely need for intensive care following surgery. The DHB2 on-call General

³ A surgical procedure that involves making an incision in the abdomen to examine the abdominal cavity.

⁴ A life-threatening condition that occurs when the body's response to an infection damages its own tissues and organs.

⁵ Relevant dates are referred to as Days 1–6 to protect privacy.

⁶ Under the National Bowel Screening Programme, which is designed to identify significant pathology.

⁷ HSP uses a wire snare to encircle the polyp. The snare is then closed with the aim of capturing 1–2mm of normal tissue around the polyp, then an electric current (electrocoagulation) is used until the polyp comes off the cauterised base.

⁸ CSP uses a wire snare to encircle the polyp. The snare is then closed, with the aim of capturing 1–2mm of normal tissue around the polyp, until complete closure is achieved and the polyp is cut off.

⁹ A normal pulse rate is between 60–100bpm.

¹⁰ A general surgeon, an on-call physician, and an on-call anaesthetist.

Surgery consultant, Dr E, was consulted, and a transfer of care to DHB2 was arranged for 11.00am that day.

23. At 9.50am on Day 3, while still at DHB1, a computerised tomography (CT) scan of Mr A's abdomen was reported as showing a large volume of air and some free fluid within the peritoneal cavity¹¹ consistent with a bowel perforation.¹² At 11.00am, Mr A was transferred to DHB2.

DHB2, Day 3

24. On arrival at DHB2 at 12.55pm on Day 3, Mr A was transferred to the General Surgery ward. His condition was stable and his vital signs were normal except for an elevated heart rate (105–110bpm).
25. There was a delay before Mr A was seen by a doctor. Dr E said that a nurse notified a house officer that Mr A had arrived, but it was not the appropriate on-call house officer. Dr E stated that it was not until mid-afternoon that the appropriate on-call house officer was notified that Mr A had arrived.
26. At approximately 4pm, Mr A was reviewed by the on-call surgical registrar, who noted the history of abdominal pain over the previous 24 hours. Mr A's heart rate was recorded to be 100–110bpm and his observations were otherwise stable. His abdomen was noted to be swollen and tender, particularly in the right upper quadrant, but not peritonitic.¹³ The registrar documented: "[Impression] Microperforation¹⁴ stable ..." The registrar discussed Mr A's case with Dr E, and the plan included commencing antibiotics.¹⁵

Initial consultant review — Dr E

27. At around 4.30–5.30pm on Day 3, Dr E reviewed Mr A during the afternoon ward round. Dr E told HDC that Mr A had no fever and was alert and orientated, with tenderness in the right upper quadrant of his abdomen, which was "surprisingly benign". There was no peritonitis, and his white cell count was normal.
28. Dr E considered that the CT findings and Mr A's clinical state were consistent with a small bowel perforation that had occurred two days earlier and sealed itself off.¹⁶ Dr E told HDC that given Mr A's complex medical history and co-morbidities, surgery was considered to be high risk and technically demanding.¹⁷ Dr E stated that his assessment was that with signs limited to the right upper quadrant of the abdomen two days after the injury, Mr A was

¹¹ The space within the abdomen lined by a thin membrane (the peritoneum) that holds the gut and abdominal organs.

¹² The suspected site of perforation was the ascending colon, with two other areas of suspected colonic wall injury noted in the transverse colon.

¹³ Affected by or concerning peritonitis (inflammation of the lining of the abdomen).

¹⁴ A small perforation in the bowel that has sealed over.

¹⁵ Gentamicin initially and then amoxicillin.

¹⁶ Dr E said that when the bowel perforation was present, it likely leaked enough colonic content to cause an inflammatory response leading to the reactive abnormal fluid in the right subphrenic space. Dr E stated that the CT scan showed no evidence of peritoneal fluid, and this was consistent with the clinical picture.

¹⁷ Due to intra-abdominal scarring or adhesions.

suitable for a trial of conservative management of gut rest¹⁸ and antibiotics to treat the sepsis, and, if Mr A did not deteriorate, to drain the subphrenic¹⁹ fluid collection the following week.

29. Dr E explained that conservative management of this condition is a trial, and that if the patient does not improve after a period of around 48 hours, or if the patient deteriorates clinically, surgery is offered (provided the patient is fit for surgery).
30. Dr E's examination on the afternoon ward round was not documented by the resident medical officer (RMO). Dr E acknowledged that the omission to document the review was poor, and that regrettably he did not review the clinical notes recorded by the RMO.

Handover

31. Around 6pm on Day 3, Dr E handed over to the on-call night surgeon. Dr E stated that at the handover, the night surgeon raised no concerns about the plan for conservative management.

Overnight Day 3/Day 4

32. At 9.20pm, a house officer reviewed Mr A and noted that his oxygen saturations were low,²⁰ and that he was unable to breathe deeply because of his abdominal pain. He was assessed as clinically stable, and the plan was to aim for 91% oxygen saturations and pain relief medication when required. No oxygen was required at that time.
33. As part of assessing patient stability, the hospital used a tool called the Early Warning Score (EWS). The tool is used by measuring objective vital signs (for example, heart rate, respiratory rate, oxygen saturations, and blood pressure) from which a score is calculated depending on any deviation from normal. The score determines whether care should be escalated, and the actions to be taken.²¹ At 10.00pm, the EWS was 3.²² Mr A's pain was assessed as 5/10, and he was given tramadol and paracetamol for pain relief with good effect.
34. At 1.30am, the on-call house officer reviewed Mr A. The plan was to continue pain relief medication, monitor Mr A's pain, and escalate to a house officer if Mr A's condition deteriorated or his pain increased.
35. The next clinical note (time unknown) records that Mr A's EWS was 4. His pain had increased to 8/10 and morphine was administered. He reported that his pain had increased to 10/10 intermittently, for which tramadol was given on two occasions with good effect.

¹⁸ Nil by mouth sips of water and ice only.

¹⁹ Part of the large bowel (colon).

²⁰ 92–93%. Normal oxygen saturations are 95–100% on room air; 92% or less is considered low.

²¹ See Appendix B for further information.

²² Mr A's heart rate was 103bpm, and his oxygen saturation was 91% with deep breaths. For an EWS of 1–5, the escalation pathway in place at DHB2 required nursing staff to: "Manage pain, fever or distress. Increase frequency of vital sign monitoring."

Day 4

Morning ward round

36. At 9.05am, Dr E reviewed Mr A during the morning ward round. A house officer documented that Mr A's heart rate was 120bpm, his pain was improving, and other observations were in the normal range.²³ The impression was microscopic perforation post-polypectomy and AF.
37. In response to an External Review undertaken following Mr A's death,²⁴ Dr E stated that Mr A's signs and symptoms were very subtle. Dr E told HDC that Mr A looked "surprisingly well", and reported that he felt "better than he had in two days" and had less pain. Dr E said that when he examined Mr A he had persistent right upper quadrant tenderness that was surprisingly mild, and there were still no signs of peritonism or generalised abdominal signs.
38. Dr E said that about 15 minutes before the ward round, Mr A's systolic blood pressure (BP) was 77mmHg (low blood pressure). A nurse immediately took Mr A's BP again and his systolic BP was 100mmHg. Dr E said that he considered that Mr A's low BP reading may have been inaccurate when taking into account his general wellness at that time. He said that at 9.45am, Mr A's systolic BP had increased to 118mmHg, and this further indicated that the earlier low BP reading was incorrect.
39. Dr E stated that he did not have Mr A's baseline heart rate, but that Mr A was usually in AF, and on admission his heart rate was about 100bpm, which was slightly elevated. Dr E said that Mr A was still without fever and quite coherent, and there was no sign of confusion or respiratory symptoms.
40. Dr E told HDC that he noted the medical reviews on the night of Day 3 and morning of Day 4, and these contributed to his decision-making, but he acknowledged that his review of the medical notes was not documented.
41. Dr E stated: "Given [Mr A's] symptomatic improvement and stable objective measurements till that time, I decided we could continue with conservative management." Dr E said that although sepsis was present, Mr A was stable, and a longer period of antibiotic treatment was proposed as part of his plan for conservative management. Dr E stated that he considered that the trial of conservative management was ongoing, and that surgery may still have been indicated.
42. Dr E told HDC that at this time, it was likely that Mr A had a sealed small perforation. Dr E said that Mr A's condition remained largely unchanged, and that on Day 4 he was "subjectively better".

Handover to Dr C

43. The handover between Dr E and consultant surgeon Dr C occurred as part of a weekly departmental Morbidity and Mortality meeting at 10.30am. Mr A's clinical condition, CT scan findings from Day 3, and management plan were discussed. Dr E stated that at this meeting

²³ He had no fever, his blood pressure (BP) was 100/75mmHg (normal range is considered to be 90/60–140/90mmHg), and his white blood cell count was normal.

²⁴ See para 72.

he emphasised that despite the CT scan findings, Mr A looked very well, but he was concerned that his condition could deteriorate. Dr E said that the conservative management plan was supported by the department, and he was reassured by this.

44. Following the Morbidity and Mortality meeting, Dr E formally handed over care to Dr C. Dr C told HDC that Dr E explained that Mr A's condition was satisfactory and had improved from the previous day, and that he would need surgery if his condition deteriorated. Dr E had no further involvement in Mr A's care.

Day 4 — afternoon

45. At 2.10pm, Mr A's EWS was 6.²⁵ Mr A was on 2L of oxygen, his pain was assessed as 3/10, and he was given regular pain relief.
46. The nursing records note that a registered nurse consulted the surgical team, and Mr A was reviewed on the afternoon ward round, but no changes were made to the plan. There is no documentation of this review by the surgical team. Dr C was the on-call duty surgeon on Day 4 and told HDC that he did not review Mr A, nor was he notified of any new concerns by the surgical team that day. Dr C said that it is possible that he was unable to attend the afternoon ward round owing to on-call duties.
47. At 4.20pm, Mr A was reviewed by a house officer. On examination, Mr A was without fever, his heart rate was unchanged at 124bpm, his blood pressure had increased to 130/80mmHg, and his urine output was 200ml over 8 hours (this was low).²⁶ The plan was to monitor his heart rate and blood pressure, continue intravenous (IV) fluids and pain medication, and take two-hourly observations.
48. A 6.00pm and again at 7.00pm, a house officer reviewed Mr A and noted that he was more orientated. The house officer recorded: "[H]as fluctuating delirium²⁷." Mr A's observations were normal except for his continuing elevated heart rate and blood pressure. The plan was to continue fluids, organise a staff member to monitor Mr A's behaviour, and to request a further review if concerned.

Overnight Day 4/Day 5

49. Mr A's daughter, Ms B (a health practitioner), arrived at 7.30pm and stayed with her father overnight. Ms B recollected that he was confused and hallucinating, and his thinking was disordered. She stated that at this stage she was concerned that her father was septic²⁸ and had delirium.

²⁵ Mr A's oxygen saturation was 93%, his blood pressure was 100/70mmHg, and his heart rate had increased to 124bpm. An EWS of 6–7 required a house officer review within 60 minutes and an increase in vital sign monitoring.

²⁶ Fluid balance is an indicator of renal function.

²⁷ A confused mental state that causes disorientation.

²⁸ See footnote 4.

50. On three occasions overnight on Day 4/Day 5, the EWS was between 5 and 6.²⁹ Mr A was disorientated and had fluctuating delirium. At 5am on Day 5, Mr A's heart rate had increased to 134bpm. The plan was to monitor him closely.
51. At 6.00am, a house officer reviewed Mr A owing to his increased heart rate of 143bpm and his AF. The house officer noted non-specific tenderness in the abdomen and that Mr A's AF was variable, but that Mr A was not dehydrated or septic. Mr A's blood test results were unchanged from the previous results, and his heart rate had decreased to 110–120bpm (baseline). He was given fluids.

Day 5

52. Ms B told HDC that at every opportunity she asked the nursing staff whether her father was septic, and was told that he was not. She recollected that her father's abdomen was more distended than on the previous day, and he had developed shortness of breath and a wheeze. She said that on the morning ward round she told the medical staff that she was concerned about her father's breathing and wheeze. Ms B told HDC that she was concerned that her father's condition was deteriorating.

Consultant review

53. At 8.40am, Mr A was reviewed by Dr C during the morning ward round. It was recorded that overnight Mr A's family had noted that he was hallucinating and was delirious. Mr A's temperature and heart rate were elevated,³⁰ but his blood pressure was normal. His abdomen was noted to be soft and minimally tender, and he was producing urine. The clinical impression was a "bowel perforation secondary to colonoscopy and multi organ dysfunction".
54. Dr C told HDC that at the time of his review, Mr A was not acutely worse than he had been when the plan for conservative management was made. Dr C said that he did not consider Mr A to be septic for the following reasons:
- Mr A was usually in atrial fibrillation and was taking medication to manage this, and in the context of a bowel perforation he was not absorbing one of his medications (metoprolol) well, which could have explained his elevated heart rate.
 - Mr A's level of consciousness did not give any cause to suspect sepsis, and on the ward round he was less confused than during the previous night.
 - Mr A denied abdominal pain, and his abdomen was soft and there was no evidence of peritonitis.
 - His temperature and oxygen requirements were not consistent with sepsis.
 - His shortness of breath could be attributed to his chronic obstructive pulmonary disease.
 - His white blood cell count remained in the normal range.

²⁹ Mr A had AF with a heart rate of 115–120bpm, and his blood pressure was 114/70mmHg and stable. His oxygen was increased to 3L and his oxygen saturation was 94–95%.

³⁰ 37.7°C and 128bpm.

55. The documented plan from the ward round was to continue the antibiotic metronidazole, add the antibiotics amoxicillin and gentamicin, monitor the urine output, request a medical review of his AF, continue to observe, and, if Mr A deteriorated further, possible surgery.
56. Dr C told HDC:
- “I arranged for [Mr A] to be changed to what I considered more appropriate antibiotic therapy. He was being managed for colonoscopic perforation and with that in mind, I didn’t feel that he had good coverage of E. coli and other common colonic bugs — so I broadened the spectrum of the antibiotics to be more aggressive. On the basis of my assessment, the atrial fibrillation and delirium in the absence of other signs of sepsis provided no basis to contravene the advice of my Department and proceed to surgery. I considered the correct thing to do was to carry on with the existing plan to manage [Mr A] conservatively, unless he declined.”
57. Dr C said that he gave instructions to his registrar to review Mr A’s response and his condition throughout the day and evening. Dr C told HDC that he was not made aware of any decline in Mr A’s condition until the following morning.
58. Ms B told HDC that by 11am her father had developed a wet, raspy, deep cough, and she informed his nurse, who said that she would “note it”.
59. At 1.00pm, a house officer reviewed Mr A and noted that his heart rate and blood pressure had increased.³¹ The house officer discussed Mr A’s care with a medical registrar, and the plan was to administer a heart medication (metoprolol³²), continue fluids, and monitor Mr A’s urine output.
60. At 1.50pm, Mr A’s EWS was 6–7.³³ He was “delirious” with “episodes of paranoid [and] aggressive behaviour”. Mr A was given pain relief, metoprolol, fluids, and antibiotics.
61. At 10.00pm, Mr A’s EWS was 5.³⁴ He was alert and orientated. It was recorded that the on-call surgical registrar was updated.

Day 6

62. At 6.20am, Mr A reported sudden pain of 10/10, and his heart rate increased to 160–168bpm. In response to a call to the medical emergency team, a surgical registrar reviewed Mr A, noted his increased abdominal pain and AF, and arranged a CT scan.
63. At 7.33am, a CT scan showed a leak in the ascending colon, and significant volumes of free intraperitoneal fluid and gas. A plan was made for an urgent laparotomy.

³¹ 130bpm and 148/90mmHg.

³² To treat atrial fibrillation.

³³ His heart rate was 130–138bpm and his oxygen saturation was 95% on 3L of oxygen, and he had a low-grade temperature (slightly elevated).

³⁴ His oxygen saturation had increased to 96% on 3L oxygen via nasal prongs, his temperature had increased to 38.2°C, his heart rate had decreased to 125bpm, and his other observations were stable.

64. At 8.30am, Dr C reviewed the CT scan, noted Mr A's deterioration, and discussed with Mr A's son the plan for surgery and for postoperative care in the ICU.
65. The surgery commenced at 9.58am. Dr C performed a laparotomy, a resection of the right colon,³⁵ and an end ileostomy.³⁶ The operation note records:

“[T]here was over 2L of faecal contamination present, particularly in the right upper quadrant just inferior to the liver ... A 1cm hole was present on the lateral aspect of the right colon with charring around the edge.”

66. Dr C told HDC that it was a “very technically demanding operation”.

ICU care

67. At 1.15pm, Mr A was admitted to the ICU for postoperative care.
68. At 6.50pm, the ICU team discussed Mr A's deterioration with a surgical registrar. It is recorded that a discussion was had with Dr C, who advised that the initial surgery was very high risk and that no further operations could be undertaken if Mr A deteriorated further.
69. Mr A's condition did deteriorate, and, after consultation with his family, it was decided to withdraw his dialysis and adrenaline support. Mr A died at 11.00pm. His cause of death was noted as septicaemia³⁷ due to the faecal material in the peritoneal cavity caused by colonic perforation.³⁸

Reviews

70. In 2018, DHB2 met with Mr A's family to discuss the care provided and the internal and external reviews undertaken.

Serious Adverse Event Review — DHB1 and DHB2

71. Following Mr A's death, DHB2 carried out a Serious Adverse Event Review (SAER) into the care provided by DHB1 and DHB2. In summary, the SAER was critical about the treatment during the colonoscopy and re-admission to the ED at DHB1. In addition, it found that although the chest X-ray showed a large volume of free air, and the CT scan reported possible sites of injury and inflammation, this was not conclusive of a perforation, where surgical management is the default option. A more detailed summary of the SAER is included as Appendix C.

External review

72. DHB2 commissioned an external review of the care provided by DHB1 and DHB2, by a general surgeon, a gastroenterologist, and an intensive care specialist, all from other DHBs. In summary, concerns were identified in relation to the colonoscopy and that despite the subtle and non-typical signs of sepsis, there were opportunities for earlier intervention.

³⁵ A right hemicolectomy.

³⁶ The ileum is separated from the colon and is brought out through the abdomen to form a stoma (an opening to the outside of the body to allow waste to be collected).

³⁷ Blood poisoning caused by bacteria.

³⁸ Faecal peritonitis.

73. The review team considered that the CT scan did not demonstrate a microperforation, but more likely a substantial defect in the colonic wall. The team considered that the CT scan offered substantial clues about the likely clinical course, and should have prompted a much lower threshold for operative management. A more detailed summary of the external review report is included as Appendix D.

DHB1

74. Following Mr A's death, DHB1 carried out a Clinical Investigation and made a number of recommendations, as set out below.

Further information

Dr D

75. Dr D told HDC that the perforation was a known complication of the colonoscopy undertaken, and, unfortunately, it eventuated in this case. He emphasised that at the time of events, the use of a hot snare technique for polyps was accepted practice.

Comment from family

76. Ms B told HDC that following her father's admission to ICU, a meeting was held with the medical staff. Ms B stated: "We were told that [his] recovery would be a long process, but all indications given at that time, were that he would survive." Ms B said that based on the information at that meeting, members of the family made the decision to return home that day.

Coroner's finding

77. On 31 January 2020, the Coroner issued a finding that Mr A died of peritonitis arising from caecal³⁹ perforation, being postoperative complications of a colonoscopy procedure and polyp removal.

Dr E

78. Dr E stated that his examination on Day 4 did not indicate the 1cm hole in the colon that was subsequently found on Day 6. Dr E considers that Mr A's pathology evolved to a 1cm perforation, which is supported by the clinical and CT findings from Day 3. Dr E said that had the 1cm hole been present from the outset, it would have been apparent to Dr D during the colonoscopy, and Mr A's symptoms and signs would have been obvious very early on. In relation to the lack of documentation, Dr E told HDC that like most senior medical officers, he does not document the findings on the ward round personally. He stated that he has no explanation for the reasons why junior doctors documented only a fraction of the discussions on the ward rounds.
79. In response to the External Review, Dr E said that he considers that the CT scans do not show a substantial colonic wall defect, but suggest a small perforation that had sealed over. He stated that in any case, it did not affect Mr A's care, as he based his management of Mr A on his clinical state.

³⁹ The first portion of the large bowel, situated in the lower right quadrant of the abdomen.

80. Dr E told DHB2 that with the benefit of hindsight, and knowing the eventual outcome, he does not disagree that earlier intervention could have led to a better outcome, and he sincerely apologises to Mr A's family. Dr E maintains that at the time of events it was reasonable to trial conservative management.

Dr C

81. Dr C told HDC that he is very sorry that Mr A died. Dr C said that at the time, without the benefit of hindsight, he endeavoured to do what he considered best for Mr A on the information available, and that his actions were understandable and reasonable in the context. Dr C stated that with hindsight, there was a clinical indication for surgical intervention at the time of Mr A's admission to DHB2.

ACC advice

82. A general surgeon, Dr F, provided external clinical advice to ACC on these events to determine whether injury occurred during the course of, or as a result of, being given treatment. A summary of Dr F's report is included as Appendix E.

Dr G — opinion

83. At the request of Dr C, general and colorectal surgeon Dr G provided an opinion to the Coroner on the care provided to Mr A by DHB2. HDC obtained a copy of the report. In summary, Dr G considers that on admission to DHB2, Mr A should have had operative management, and that Mr A's condition on Day 4 and Day 5 was similar. A summary of Dr G's opinion is included as Appendix F.

Responses to provisional opinion

84. Mr A's family, Dr C, Dr D, DHB1, and DHB2 were all given the opportunity to respond to the relevant sections of my provisional opinion. Where appropriate, changes have been incorporated into the report.
85. Mr A's family told HDC that they are concerned about the decision by DHB2 to manage patients conservatively when they have transferred from another DHB for surgery.
86. Dr D had no further comments to make in response to the provisional opinion, and stated that he expressed his deepest condolences to the family for their loss.
87. DHB1 told HDC that Dr D fully engaged in the reviews, assessment measures, and performance audits undertaken following these events. DHB1 said that Dr D changed his practice, and his record of performance has since been exemplary.
88. DHB2 had no further comment to make in response to the provisional opinion.
89. Dr C reiterated his view that when he reviewed Mr A on Day 5, his condition had not deteriorated to warrant a move from the conservative treatment plan. In support of this submission, Dr C again referred to Dr G's opinion that Mr A's condition on the morning of Day 5 was by all accounts similar or slightly better than when he was handed over to Dr C by Dr E on Day 4. Dr C submitted that there is no justifiable basis for HDC to prefer Dr Snyman's advice

over Dr G's opposing opinion about whether Mr A's condition had declined. Dr C told HDC that he disagrees with the proposed breach finding.

90. Dr C stated that he is very sorry for the suffering Mr A's family has endured as the result of Mr A's death.

Expert advice

91. In order to assist my assessment of whether or not the care provided to Mr A was of a reasonable standard, I obtained independent expert advice from general surgeon Dr Gerrie Snyman. I have also given consideration to the expert advice provided as part of other review processes, including that of Dr G.

Opinion: Dr D — adverse comment

92. General surgeon Dr D performed a colonoscopy on Mr A and removed 33 polyps in the ascending colon using HSP. The following day, Mr A presented to the ED at DHB1, and a CT scan showed a post-polypectomy perforation. I acknowledge that perforation is a known risk of the procedure, but, in my view, Dr D's clinical decision-making did not mitigate the risk of perforation for Mr A adequately. I set out my reasons below.
93. Dr D removed two polyps of 15mm and two polyps of 20mm using HSP. My expert advisor, Dr Gerrie Snyman, advised that most of his peers would have injected the polyps of 15mm with submucosal expanding fluid, which absorbs the heat, acts as a barrier to thermal injury, and, combined with adrenaline fluid, minimises immediate post-polypectomy bleeding. However, Dr Snyman advised that HSP is a safe and appropriate method to deal with 15mm and 20mm polyps, and that the use of submucosal fluid is encouraged but not a requirement. He considers that this represents a mild to perhaps a moderate departure from the expected standard of care.
94. Dr D also removed 29 polyps under 10mm using HSP. Dr Snyman advised that most of his peers would have used CSP to remove the polyps under 10mm. He said that on small polyps, CSP is a safe method with low complication rates, and the failure to use this method represents a minor departure from the standard of care, as HSP may have been used appropriately to remove some polyps to minimise the risk of bleeding.
95. I note that the SAER team's findings are consistent with Dr Snyman's advice on the issues raised above.
96. The external review team — a general surgeon, a gastroenterologist, and an intensive care specialist, all from other DHBs — stated that it was a difficult colonoscopy owing to the number of polyps found. The team said that a lack of time can increase the risk of complications, and so a second procedure may have been a better option. In contrast, Dr Snyman advised that there are no concerns about the number of polyps removed during the

colonoscopy. Dr Snyman stated that patient parameters⁴⁰ determine how many polyps can be removed, rather than the number of polyps found. He noted that the procedure was done with ease, and that Mr A experienced no discomfort and tolerated the procedure well. Noting the suggestive rather than conclusive nature of the external review advice (that a second procedure *may* have been a better option), I accept Dr Snyman's more definite advice that the number of polyps removed was reasonable. I note that during the procedure, Dr D encountered no issues that indicated to him that the colonoscopy was difficult, and that Mr A remained comfortable during the procedure. Dr Snyman also stated:

“The risk of perforation does not excuse the perforation, but reflects the fact that despite best care, there remains a real risk of perforation. I would not consider the perforation as a result of the colonoscopy and polypectomies to indicate an error was committed by [Dr D].”

97. Cumulatively, the findings of large polyps and multiple polyps, particularly in the right-hand side of the colon, increased the risk of perforation. Guided by Dr Snyman, I accept that use of submucosal fluid and adrenaline was not the required standard for the larger polyps, but nevertheless would have been the safest method for Dr D to have adopted, and that in relation to the small polyps CSP was the preferred and expected method of removal. I am not persuaded, however, that Dr D's care in this respect meets the threshold to find him in breach of the Code of Health and Disability Services Consumers' Rights (the Code). I note further that Dr D underwent an expert review of his clinical practice, and I consider this appropriate to meet the concerns identified.

Opinion: Dr C — breach

Decision to maintain plan for conservative treatment on Day 5

98. Following the handover to Dr C on the morning of Day 4, medical staff reviewed Mr A on four occasions owing to his fluctuating delirium and increased heart rate. On six occasions, the nursing staff reviewed Mr A and noted his increased heart rate, increased oxygen requirements, delirium, and increased EWS. This information was documented in the clinical notes.
99. On Day 5, Dr C reviewed Mr A on the morning ward round around 8am. Dr C's plan was to broaden the spectrum of antibiotics and continue with conservative management. He justified the plan on the basis that he did not consider that Mr A was acutely worse than on admission. He considered that Mr A did not show signs of sepsis, his symptoms could be explained by his underlying conditions, he denied abdominal pain, and there was no evidence of peritonitis. In support of the view that Mr A's condition had not declined, Dr C referred to Dr G's opinion that Mr A's condition on the morning of Day 5 was by all accounts similar or slightly better than when he was handed over to Dr C by Dr E on Day 4.

⁴⁰ The patient remains comfortable, co-operative, stable, and safe during the colonoscopy.

100. I acknowledge that the signs of sepsis were subtle and non-typical. However, it is well documented in the clinical notes that in the preceding 24 hours, Mr A had multiple reviews owing to his heart rate, oxygen requirements, delirium, pain, and EWS, indicating that he was not well. Based on this, and the expert evidence, a deterioration in Mr A's condition is evident over the preceding 12 hours to 8.40am on Day 5, and over 36 hours following admission.
101. Dr Snyman considers that it should have been clear at the time of the morning ward round on Day 5 that Mr A's condition had deteriorated, and that the trial of conservative management had failed. Dr Snyman advised:
- “[O]ver the 36 hours after admission there was a decline in [Mr A's] general condition and ... the intermittent faster atrial fibrillation and delirium responding to fluid were likely signs of worsening sepsis even though his abdomen and blood tests remained unchanged.”
102. Dr Snyman advised that the appropriate treatment was to proceed to theatre for a laparotomy, and he considers that the failure to provide appropriate treatment represents a moderate to severe departure from the standard of care.
103. Dr C was not verbally informed by staff of any changes in Mr A's condition. I note that colorectal surgeon Dr G commented that this indicated poor vertical (i.e., from junior staff to senior staff) communication. Dr Snyman considers that had the doctors on the night of Day 4 discussed Mr A's care with the on-call registrar, this may have alerted Dr C to the issues overnight. I acknowledge that better communication could have alerted Dr C to Mr A's condition overnight sooner. However, I note Dr Snyman's comment that it is the responsibility of the ward round to note the patient's history over the preceding 24 hours.
104. In response to my provisional decision, Dr C submitted that there was no basis for preferring Dr Snyman's view that Mr A's condition had declined in the 36 hours preceding Dr C's review, over Dr G's view that Mr A was much the same as when Dr E reviewed him on Day 4. I disagree. In doing so, I note that Dr G accepts that there had been a “drift” in Mr A's condition due to his AF and the development of delirium. In addition, Dr G was of the view that surgical intervention was indicated on admission. Dr Snyman is of the view that surgical intervention was warranted by Day 5 and that ongoing conservative management could not be justified at that point.
105. On that basis, I remain of the view that it is open to me to accept Dr Snyman's advice. Regardless of the degree of communication on the previous night, as the consultant surgeon it was Dr C's responsibility to elicit relevant information from his more junior colleagues at the ward round on Day 5. I am critical that Dr C's assessment on Day 5 did not adequately take into account Mr A's condition over the 36 hours since his admission.

Conclusion

106. Overall, I consider that the services provided to Mr A by Dr C were below the acceptable standard. On Day 5, Dr C failed to recognise Mr A's deterioration. As a result, there was a missed opportunity for Mr A to receive surgical intervention at an earlier time. For the reasons

set out above, I find that Dr C failed to provide services to Mr A with reasonable care and skill, and, accordingly, breached Right 4(1) of the Code.⁴¹

Power differentials — other comment

107. Dr C submitted that his assessment of Mr A's condition on Day 5 provided no basis to contravene the advice of his Department and proceed to surgery. Dr G has suggested that owing to the different levels of experience between Dr C (first-year consultant) and Dr E (experienced), it was difficult for Dr C to change the initial management plan made by Dr E. In contrast, Dr Snyman advised that there is no evidence that power differentials are relevant in this case. I am not persuaded by Dr G's opinion, or Dr C's submission, that Dr C was not able to depart from the plan agreed at the Morbidity and Mortality meeting (24 hours earlier). I expect a clinician in Dr C's role as SMO to "speak up" and challenge a plan, if the plan needs to change, particularly when a patient's condition deteriorates. This is a standard that consumers should expect also. In any event, the plan made at the Morbidity and Mortality meeting, and articulated by Dr E during handover, sanctioned surgery in the event of Mr A's deterioration.

Attendance at ward round on Day 4 — no breach

108. Mr A developed complications from a colonoscopy performed at DHB1. He was transferred to DHB2 on Day 3, and on Day 4 Mr A's care was handed over to Dr C. The plan was to continue with conservative management, and to consider surgery if Mr A's condition deteriorated. My expert general surgeon, Dr Snyman, advised that this plan was cautiously appropriate at this time. I accept his advice.
109. Following the handover of care, Dr C did not review Mr A on the afternoon ward round on Day 4. Dr C stated that he was the on-call surgeon, and may have been attending to another patient that afternoon. Dr Snyman advised that had Dr C attended the afternoon ward round on Day 4, he may have noticed the earlier reviews of Mr A that day, and this may have set up the recognition that on the following morning conservative management had failed. While it is unfortunate that Dr C did not review Mr A in person, I accept that he may have been unavoidably required elsewhere in the hospital.

DHB2 — adverse comment

110. As a healthcare provider, DHB2 is responsible for providing services in accordance with the Code. In this case, I consider that the errors that occurred were the result of individual clinical judgement, and did not indicate broader systems or organisation issues at the DHB. Therefore, I consider that DHB2 did not breach the Code. However, I have concerns about some aspects of Mr A's care, as outlined below.

⁴¹ Right 4(1) states: "Every consumer has the right to have services provided with reasonable care and skill."

Delay in review

111. On admission to DHB2, there was a delay in a medical review of Mr A. Consultant surgeon Dr E told HDC that a nurse requested a medical review of Mr A, but did not alert the appropriate house officer, and it was not until early afternoon that the appropriate house officer was notified about Mr A's admission. As a result, it was approximately three hours after Mr A's admission that a medical review was undertaken.

Documentation

112. There is no documentation of the afternoon ward round review of Mr A on Day 3, and Dr E said that the RMO's omission to document the review was poor.
113. Dr Snyman advised that it is "disappointing" that on Day 4 there is no documentation, and therefore no indication that the reviews on the previous night were considered in the decision to continue conservative management.
114. Dr E told HDC that when he reviewed Mr A during the morning ward round on Day 4, he noted the two medical reviews and nursing review on the previous night, but this was not documented by a house officer.
115. On the afternoon ward round on Day 4, Mr A was reviewed by the medical team, but this review was not documented either.
116. The multiple examples of poor documentation reflect poorly on the system at DHB2. Documentation is a key component of ensuring continuity of care, and it should have been accurate and comprehensive in light of the multiple handovers and ongoing appraisal of the management plan for Mr A.

Escalation

117. I note that the external review team considered that the EWS scoring was accurate and escalated appropriately during Mr A's admission. However, on Day 4, Mr A was reviewed by house surgeons on four occasions, but there is no evidence that this was discussed with the registrar on call. Dr Snyman advised that several reviews on the same patient should have alerted the junior doctors to at least discuss the care with the registrar. Dr Snyman said that escalation to the registrar on call on Day 4 may have emphasised the concerns to the next duty consultant. I agree and am concerned about the lack of communication and escalation by junior doctors on Day 4. However, I accept that regardless of whether concerns were escalated overnight, Mr A's deterioration should have been recognised at the ward round on Day 5, as discussed above in relation to Dr C.

Documentation of discussions with family

118. In the complaint, Ms B said that following her father's admission to ICU, the family were told that he would survive and his recovery would be a long process. Ms B said that on the background of that information, family members returned home, and Mr A died that evening. In contrast, DHB2 told HDC that Mr A's family were updated on Mr A's condition, and that this is recorded in the clinical notes.

119. I am unable to determine from the clinical notes or DHB2's response what information was conveyed to Mr A's family following his admission to ICU. In my view, information conveyed to a patient's family in a time-critical situation and when a family member is critically ill, must be accurate and documented. This did not occur.

Conclusion

120. Regarding DHB2's organisational responsibility to provide care of an appropriate standard, I am concerned about several aspects of Mr A's care in relation to the delay in a medical review, documentation, escalation, and communication. In my view, certain aspects of care could have been improved. I note the changes made by DHB2 since these events, and consider these to be appropriate to address the concerns raised. The changes are detailed in the "Changes since events" section below.

Initial decision to manage conservatively — no breach

121. I note that colorectal surgeon Dr G and ACC advisor Dr F considered that on admission on Day 3, or within 12 to 24 hours, Mr A should have had surgery. Similarly, the SAER noted that the CT scan taken on Day 3 showed a substantial defect in the colonic wall, rather than a "microperforation", and should have prompted a much lower threshold for operative management, although Dr E disagreed, and noted that he based his management of Mr A on his clinical state, not just the CT scan findings.
122. My expert, Dr Snyman, agrees that the CT scan showed a perforation. He reviewed Dr G's opinion and Dr F's advice and acknowledged that there is unlikely to be a unanimous decision on either conservative or operative management on admission, and it "remains a carefully considered clinical and common sense decision". Dr Snyman advised that on admission Mr A met most of the criteria for consideration for conservative management, and "a considered decision was made, taking into account the clinical presentation, the likely difficulty of surgery and the complexity of [Mr A's] co-morbidities".
123. Dr Snyman advised that the decision to trial conservative management on admission was reasonable, and a continuation of that plan on the morning ward round on Day 4 was cautiously appropriate.
124. I note too that the plan for conservative management was endorsed by the Department at the Morbidity and Mortality meeting.
125. Although I note the lack of consensus for either conservative management or surgical intervention, guided by Dr Snyman's advice I am satisfied that the decisions to manage Mr A conservatively on admission to DHB2, and on the morning of Day 4, were reasonable in these circumstances, although, as noted above, by Day 5 surgery was indicated.
-

Changes since events

126. Dr D told HDC that he has read the standards and guidelines referenced by Dr Snyman,⁴² and ensures that he is up to date in all areas of his practice.
127. Since these events, DHB1 has made the following changes:
- a) Developed a procedure around the management of patients who are on anticoagulants and require a colonoscopy.
 - b) Developed a guideline on the use of either a hot (with diathermy) or a cold (without diathermy) snare when performing polypectomy during a colonoscopy.
 - c) Developed a guideline on the procedure for selecting the number and type of polyps to be biopsied for patients with multiple colonic polyps.
 - d) Undertaken a review of diathermy equipment.
128. In addition, Dr D underwent an expert review of his clinical practice and his care.
129. The external review commissioned by DHB2 made a number of recommendations, including:
- a) To upskill and mentor the DHB1 endoscopy service in polypectomy technique and assessment of polypectomy site status.
 - b) To provide staff in the DHB2 department with education on decision-making and on sepsis.
 - c) To develop a “whole of institution” sepsis programme at DHB2.
130. Dr C told HDC that he has “reflected at length on [Mr A’s] case and whether a different outcome could have been achieved”. He said that his daily management of acute general surgery has been affected by this, and he practises with an eye on what could be considered “defensive surgery”.
131. Dr E told HDC that he now ensures that discussions on ward rounds are documented thoroughly.

Recommendations

132. I recommend that Dr C:
- a) Provide a written apology to Mr A’s family for the breach of the Code identified in this report. The apology is to be sent to HDC within three weeks of the date of this report, for forwarding to Mr A’s family.

⁴² Appendix A.

133. I recommend that DHB1 update HDC on the changes made as a result of the SAER, within three months of the date of this report, including:
- a) Details of the procedure to be used when a patient undergoing a colonoscopy is taking anticoagulants.
 - b) A copy of the guideline for the use of either hot or cold snare polypectomy during a colonoscopy.
 - c) The outcome of the review of the diathermy equipment.
 - d) A copy of the guideline for selecting the number and type of polyps to be biopsied for patients with multiple colonic polyps.
134. I also recommend that DHB1 provide an update on the recommendation in the DHB2 external review to upskill and mentor the DHB1 endoscopy service in polypectomy technique and assessment of polypectomy site status.
135. The above information should be provided to HDC within three months of the date of this report.
136. I recommend that DHB2 update HDC on the changes made as a result of the external review, including:
- a) Confirmation that relevant staff have received education on decision-making.
 - b) Confirmation that relevant staff have received education on sepsis.
 - c) An update on the development of a “whole of institution” sepsis programme.
137. The above information should be provided to HDC with three months of the date of this report.
138. I also recommend that within six months of the date of this report, DHB2 undertake the following and report back to HDC:
- a) Provide training on documentation to junior doctors in the surgical department.
 - b) Consider a review of training provided to junior doctors in the surgical department in relation to escalation to senior doctors following multiple reviews of a patient.
 - c) Consider developing a guideline for documentation of patient handover in a patient’s clinical record.
-

Follow-up actions

139. A copy of this report with details identifying the parties removed, except the expert who advised on this case, will be sent to the Medical Council of New Zealand, and it will be advised of Dr C's name in covering correspondence.
140. A copy of this report with details identifying the parties removed, except the expert who advised on this case, will be sent to the Health Quality & Safety Commission and the Royal Australasian College of Surgeons, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A: Independent clinical advice to Commissioner

The following expert advice was obtained from a general surgeon, Dr Gerrie Snyman:

“I have been asked by the HDC to provide an opinion to the Commissioner on case number **C18HDC00534**.

I have read and agree to follow the Commissioner’s Guidelines for Independent Advisors.

My name is Christoffel Gerhardus Snyman. I hold a fellowship in general surgery (FRACS) since 2003. I have extensively trained and worked as a specialist general surgeon in New Zealand. I am a full time consultant general surgeon in a medium sized public hospital. I perform diagnostic as well as therapeutic endoscopies. I am competent at, and comfortable with, removing large polyps endoscopically. I have been accredited for bowel screening colonoscopies.

I do not have a personal or professional conflict in this case.

Expert advice requested

Please review the enclosed documentation and advise whether you consider the care provided to [Mr A] by [Dr D] was reasonable in the circumstances, and why.

In particular, please comment on:

1. Whether the technique used during the polypectomy on [Day 1] was appropriate.
2. Whether the number of polyps removed was reasonable.
3. Any other matters that you consider amount to a departure from the accepted standards.

Documents provided

- Letter of complaint dated 19 March 2018.
- [Dr D’s] response dated 9 July 2019.
- Clinical records from [DHB1] covering the period [Day 1] to [Day 3].

Additional Resource

- Gregory P Tarr et al. Perceived risks and benefits of surveillance colonoscopy in people undergoing surveillance for family history of colorectal cancer. NZMJ 2013, Vol 126 No 1382: 58–69
- ASGE guidelines. Complications of colonoscopy. Gastrointestinal Endoscopy 2011; Vol 74, No. 4:745–752
- ASGE guidelines. The management of ant-thrombotic agents for patients undergoing GI endoscopy. Gastrointestinal Endoscopy 2016; Vol 83, No 1: 3–16

- European Society of Gastrointestinal Endoscopy Guidelines. Colorectal polypectomy and endoscopic mucosal resection: ESGE clinical guideline 2017
- Endoscopy Governance Group of New Zealand
- Up To Date — Endoscopic removal of large colon polyps

Summary

[Mr A] underwent a routine screening colonoscopy as a result of a positive faecal occult blood test undertaken as part of the National Bowel Screening program. A total of 33 polyps were removed with hot snare polypectomy. There were no immediate complications. Within 24 hours [Mr A] developed abdominal pain that resulted in an admission to [DHB1]. A chest X-ray and subsequent CT scan showed evidence of free air consistent with a post-polypectomy perforation. [Mr A] was transferred to [DHB2] for further management.

I acknowledge the rest of [Mr A's] health care and subsequent death. My formal review and opinion is restricted to the endoscopy care provided to [Mr A] by [Dr D] on [Day 1].

Expert advice requested

1. Whether the technique used during the polypectomy on [Day 1] was appropriate.

Minor deviation from recommended standard of care for polyps less than 10 mm.

Minor deviation from recommended standard of care for polyps larger than 10 mm.

Recommendation: Review of standards regarding the use of submucosal injection and polypectomies.

The European Society for Gastrointestinal Endoscopy has produced the most widely cited and comprehensive guidelines for polypectomies. New Zealand guidelines reference them. The guidelines recommend cold snare polypectomies (CSP) for polyps under 5 mm in size. The guidelines suggest CSP preferentially over hot snare polypectomy (HSP) for polyps 6–9mm in size. The guideline suggests HSP for larger polyps. To minimise the risk of thermal injury and to help with haemostasis, the guidelines recommend considering submucosal injection of some description in conjunction with HSP.

I think it is important to note that the guidelines were published in its current format only in 2017.

[Dr D] removed 29 polyps under 10 mm in size using a hot polypectomy snare. In his reply he indicates that he used electro-coagulation sparingly and that he was aware of the risk of thermal injury. [Mr A] was taking Dabigatran which was withheld prior to the procedure. The plan was to restart Dabigatran after the colonoscopy. Evidence shows that there is no significant increased risk of bleeding in this group of polyps, provided the anti-coagulation was stopped appropriately. Most of my colleagues and I, would have used CSP for this group of polyps preferentially. I consider there was deviation of care based on good evidence to recommend CSP as safe, with low complication rates in

this group of polyps. The deviation remains minor as HSP may have been used appropriately in some of those polyps to minimise the risk of bleeding.

There were two polyps of 15 mm and 2 polyps of 20 mm removed using HSP. Most of my colleagues and I would have injected the two 15 mm polyps with a submucosal expanding fluid and the two 20 mm polyps with adrenaline added to the fluid. The submucosal expansion fluid acts as both a barrier as well as a heat sink against thermal injury. The addition of adrenaline helps to minimise immediate post polypectomy bleeding, but not delayed post polypectomy bleeding. I consider this deviation to be minor to perhaps moderate, as HSP is a safe and appropriate way to deal with these polyps. The use of submucosal expansion fluid should be considered and is encouraged, but is not an absolute requirement.

All polyps larger than 10 mm were tattooed appropriately.

There is no guarantee that had submucosal expansion fluid and CSP been used in the various lesions, that perforation would have been avoided. The general international and New Zealand figures for perforation are quoted as 1:1000 for a non-procedural colonoscopy, and, 1:500 for a polypectomy. Larger polyps and right sided polyps increases the risks of perforation. The risk of perforation does not excuse the perforation, but reflects the fact that despite best care, there remains a real risk of perforation. I would not consider the perforation as a result of the colonoscopy and polypectomies to indicate an error was committed by [Dr D].

2. Whether the number of polyps removed was reasonable.

No deviation from standard of care.

The question of how many polyps are too many polyps is based on patient parameters, rather than absolute numbers. Both endoscopy unit staff as well as patient must be comfortable that polypectomies are being carried out. Provided the patient remains comfortable, co-operative, stable and safe, and provided the endoscopy unit staff remains comfortable to continue, there is in theory no maximum, nor a minimum, number of polyps that, can or must, be removed in one sitting. The electronic endoscopy record indicates that [Mr A] received sedation that was well within the normal parameters. The record indicates that the procedure was done with ease and that [Mr A] experienced no discomfort during the procedure and tolerated it well. Therefore, I have no concerns regarding the number of polyps removed.

3. Any other matters that you consider amount to a departure from the accepted standards.

The initial attempted conservative management of [Mr A's] post polypectomy perforation is of concern to me. I must be very explicit and clear that I have very limited information surrounding his care outside of [DHB1]. My concern should not be taken as a criticism of the care received in [DHB2]. My concern is to be taken with the expert opinion regarding the care received after transfer from [DHB1]. Post polypectomy syndrome is a transient localised inflammatory response to a transmural burn following

HSP. It usually presents as localised abdominal pain and localised peritonism. It is often associated with a microperforation that has sealed itself. It may be associated with some systemic findings. It can usually be successfully managed conservatively. It is not usually associated with significant amounts of free air on X-ray or CT scan. [Mr A's] chest X-ray and CT reports stated significant amounts of free air was present on the examination. This to me would signify a florid perforation that would be unlikely to respond to conservative management and would likely require operative management. This is my opinion based on the very limited amount of information available surrounding the perforation.

Gerrie Snyman
General Surgeon
FRACS"

Initial advice DHB2

Dr Snyman provided the following expert advice on 11 February 2019:

"Expert advice requested

Please review the enclosed documentation and advise whether you consider the care provided to [Mr A] by [DHB2] was reasonable in the circumstances, and why.

In particular, please comment on:

1. Whether conservative management was an appropriate approach once [Mr A] was transferred to [DHB2].
2. Whether the examinations undertaken by [Dr E] were adequate.
3. Whether continuing with conservative management was appropriate when care was handed over to [Dr C] on [Day 4].
4. Any other matters you consider amount to a departure from the accepted standards.

Documents provided

1. Letter of complaint dated 19 March 2018.
2. [DHB2's] response dated 8 August 2018.
3. [Dr E's] response dated 9 August 2018
4. [Dr C's] response dated 15 August 2018.
5. Clinical records from [DHB2] covering the period from [Day 3] to [Day 6].

Additional Resource

- Up-to-date
- Hawkins et al. Management of colonoscopic perforations: A systematic review. American Journal of Surgery, 215 (2018); 712–718

- Guidelines from the ASGE on Complications of colonoscopy. Gastrointestinal endoscopy volume 74, no 4:2011; 745–752
- Kavic et al. Management of complications of colonoscopy. NCBI Bookshelf, National Library of Medicine
- Spinelli et al. Postoperative pneumoperitoneum after colorectal surgery: Expectant vs surgical management. WJGS June 2012, volume 4:6; 152–156

Summary

[Mr A] underwent a screening colonoscopy on [Day 1], at [DHB1]. [Mr A] was discharged home then represented to the Emergency Department the next day with abdominal pain. A diagnosis of perforation post-colonoscopy was made and [Mr A] was transferred to [DHB2] on [Day 3]. [Dr E] was the on-duty Consultant at the time who considered conservative management was appropriate. [Mr A's] care was handed over to [Dr C] on [Day 4], and conservative management continued until [Mr A's] condition rapidly declined on [Day 6]. A category 1 laparotomy was performed however, [Mr A] died in the intensive care unit on the same day.

Expert advice requested

1. Whether conservative management was an appropriate approach once [Mr A] was transferred to [DHB2].

No specific deviation from standard of care

Might be viewed by some colleagues as deviation from standard of care.

The decision to manage [Mr A's] post colonoscopy perforation conservatively may seem at first to have been incorrect. There was clear evidence of a perforation, a Colonoscopy with multiple large polyps removed only 48 hours (approximately) prior, large amounts of free air on a chest X-Ray and a CT scan confirming both the free air as well as evidence of a likely perforation in the right colon. However, not all perforations mandate a laparotomy, there are individualised cases that can be managed conservatively.

The findings that would suggest early laparotomy and not suitable for conservative management would be:

- Recognised perforation at time of endoscopy
- Early evidence of florid perforation (arbitrarily taken as within 24 hours)
- Poor bowel preparation
- Generalised peritonitis
- Sepsis (pyrexia, raised inflammatory markers, tachycardia, hypotension, altered mental state)
- Gross contamination on CT scan

Findings that would suggest conservative management could be considered are:

- Recent bowel preparation
- Late presentation of perforation

- Localised peritonitis only
- Expectation of a small defect as a consequence of colonoscopy and possible polypectomy or biopsy
- Retroperitoneal or sealed off perforation
- No evidence of gross contamination
- Good general health

It is worth mentioning that the amount of free air on an x-ray does not specifically correlate with the degree of perforation, and is therefore not a measure of whether conservative or operative management is more appropriate.

On admission, [Mr A] met most of the criteria for consideration for conservative management. He did have some criteria for consideration for early laparotomy. When [Mr A] was admitted to [DHB2] he had presented with his perforation to [DHB1] 24 hours after his colonoscopy and was at that stage approximately 48 hours post colonoscopy. His abdomen was noted on admission to be distended and generally tender but not peritonitic. He exhibited no evidence of sepsis, WCC normal, Apyrexial, blood pressure normal and no respiratory concerns. He was in atrial fibrillation with a rate of 105 (more or less) and had a raised CRP of 253 on [Day 3]. Note was made of his co-morbidities and anti-coagulation. The CT scan demonstrated a perforation and some free fluid indicating a localised degree of contamination.

There are to the best of my knowledge no clear guidelines or research that will provide us with absolute algorithms to help predict who will fail conservative management and will therefore benefit from early surgical intervention. It remains a carefully considered clinical and common sense decision.

In my opinion it was a reasonable decision to trial conservative management. I suspect that not all my colleagues would agree with this decision as the diagnosis of post polypectomy perforation with CT proven perforation and free fluid could be interpreted as an indication for early surgical intervention. However, I am satisfied that at the time, a considered decision was made, taking into account the clinical presentation, the likely difficulty of surgery and the complexity of [Mr A's] co-morbidities.

2. Whether the examinations undertaken by [Dr E] were adequate.

No deviation from standard of care

Yes, they were.

Upon admission [Mr A] had already had a CT [at DHB1] and otherwise received the standard admission tests. I did not identify a need for more extensive testing at that time.

The surgical registrar who admitted [Mr A] documented his findings, discussion and plan with [Dr E] who also saw and examined [Mr A] himself the next day as per the notes.

3. Whether continuing with conservative management was appropriate when care was handed over to [Dr C] on [Day 4].

No deviation from standard of care on [Day 4].

To be interpreted with some caution.

I consider the decision to continue conservative management on [Day 4] to have been cautiously appropriate. In [Dr E's] reply to the HDC, he outlines the usual handover of patient care process on a Friday morning. The care for [Mr A] was discussed in a multi-collegial setting and further involved a bedside examination and handover. The bedside examination was consistent with a stable condition and notes that [Mr A] felt better than before. The plan was made to continue with conservative treatment. There were two reviews overnight that were perhaps early indications that [Mr A] was possibly not doing quite as well as interpreted. However as he was still relatively well at that stage and in the absence of other symptoms or signs of deterioration, it would have been considered appropriate to continue the trial of conservative management. It is disappointing that there is no documentation to indicate that the previous night reviews had been noted and taken into consideration regarding the decision to continue conservative management. The combined ward round and hand over may have been an opportunity to highlight the reviews and although the decision to continue conservative management may have remained unchanged, it also may have been an opportunity to affirm that this was a trial of treatment and might need to change to an operative management plan at some stage.

4. Any other matters you consider amount to a departure from the accepted standards.

Moderate to severe deviation from standard of care.

There is no indication in the documentation on the ward round of [Day 4] that note was made of the two house surgeon reviews overnight on [Day 3] and [Day 4] and of the nursing notes indicating intermittent documentation of increased pain.

From [Day 4] through to [Day 5] there were in addition to the consultant ward round on [Day 4], four further junior doctor reviews for increased heart rate and delirium. There were six nursing reviews for increased heart rate, increased oxygen requirements, delirium and increased EWS (early warning score). From the notes it would seem that the increased heart rate, and the delirium to some extent, responded to IV fluid. I acknowledge that according to the notes [Mr A's] abdomen remained tender but not peritonitic, the WCC and Neutrophil count remained normal and that there was no pyrexia.

However it is worth reflecting that viewed over the 36 hours after admission there was a decline in his general condition and that the intermittent faster atrial fibrillation and delirium responding to fluid were likely signs of worsening sepsis even though his abdomen and blood tests remained unchanged. The ward round on [Day 5] made note

of these changes and added the new diagnosis of multi-organ [dysfunction]¹. It is my opinion that there was an opportunity at that point to recognise this deterioration and offer [Mr A] a salvage laparotomy. Unfortunately the decision was made to broaden the spectrum of the antibiotics and to continue with conservative management.

Most of my colleagues would agree that by [Day 5] [Mr A] had deteriorated and would have been considered to have failed trial of conservative management. The appropriate treatment at that stage should have been to proceed to theatre for laparotomy.

By the early morning of [Day 6] this was obvious and [Mr A] received an urgent CT followed by an urgent laparotomy. He passed away later on [Day 6].



Gerrie Snyman”

Further advice DHB1

Dr Snyman provided the following further expert advice on 22 October 2020:

“I have been asked by the HDC to provide a reviewed opinion to the Commissioner on case number **C18HDC00534** based on further reports.

Expert advice requested

Please review the enclosed documentation and advise whether you consider the care provided to [Mr A] by [Dr D] was reasonable in the circumstances, and why.

In particular, please comment on:

1. Whether the technique used during the polypectomy on [Day 1] was appropriate.
2. Whether the number of polyps removed was reasonable.
3. Any other matters that you consider amount to a departure from accepted standards

Documents provided

- ACC report
- My original report on the case.

Summary

[Mr A] underwent a routine screening colonoscopy as a result of a positive FIT test undertaken as part of the National Bowel Cancer Screening Program on [Day 1], at [DHB1]. A total of 33 polyps were removed. There were no immediate complications.

¹ Amended by Dr Snyman on 26 January 2022.

[Mr A] represented to the Emergency Department the next day with abdominal pain. A chest X-Ray and subsequent CT scan showed evidence consistent with a post-polypectomy perforation. [Mr A] was transferred to [DHB2] for further management.

Expert advice requested

Whether the technique used during the polypectomy on [Day 1] was appropriate.

Minor Deviation from standard of care for polyps less than 10 mm

Minor deviation from standard of care for polyps larger than 10 mm

1. My opinion remains unchanged by the various reports referencing this case.

Whether the number of polyps removed was reasonable.

No deviation from standard of care

2. My opinion remains unchanged by the various reports referencing this case.

Any other matters that you consider amount to a departure from accepted standards

3. In my original report I expressed potential concern for how [Mr A] was managed in [DHB2]. This was based on the limited information available to me at the time of the report.
4. I have since provided an opinion in a separate report on the management of [Mr A] by [Dr E] and [Dr C] in [DHB2].
5. I take note of the opinion of [Dr F] that operative management should have been provided sooner.
6. Whilst I do not disagree fundamentally with [Dr F's] opinion and report, I do consider the trial of conservative management by [Dr E] to have been cautiously appropriate.
7. This opinion is based on the various reports from [DHB2] and explained in my separate report on the matter.



Gerrie Snyman”

Further advice [DHB2]

"I have been asked by the HDC to provide a reviewed opinion to the Commissioner on case number **C18HDC00534** based on further reports.

Expert advice requested

Please review the enclosed documentation and advise whether you consider the care provided to [Mr A] by [DHB2] was reasonable in the circumstances, and why.

In particular, please comment on:

1. Whether conservative management was an appropriate approach once [Mr A] was transferred to [DHB2].
2. Whether the examinations undertaken by [Dr E] were adequate.
3. Whether continuing with conservative management was appropriate when care was handed over to [Dr C] on [Day 4].
4. Any other matters you consider amount to a departure from the accepted standards.

Documents provided

- Statements from [Dr E]
- Advice from [Dr G]
- Policies
- Statement from [Dr C]
- Response from [DHB2]
- Statement and discharge summary from [DHB1]

Summary

[Mr A] underwent a screening colonoscopy on [Day 1], at [DHB1]. [Mr A] was discharged home then represented to the Emergency Department the next day with abdominal pain. A diagnosis of perforation post-colonoscopy was made and [Mr A] was transferred to [DHB2] on [Day 3]. [Dr E] was the on-duty Consultant at the time who considered conservative management was appropriate. [Mr A's] care was handed over to [Dr C] on [Day 4], and conservative management continued until [Mr A's] condition rapidly declined on [Day 6]. A category 1 laparotomy was performed however, [Mr A] died in the intensive care unit on the same day.

Expert advice requested

Whether conservative management was an appropriate approach once [Mr A] was transferred to [DHB2].

No specific deviation from standard of care

Might be viewed by some colleagues as deviation from standard of care.

1. My opinion remains unchanged.
2. I maintain the caveat that there is unlikely to be a unanimous decision amongst my peers as to the conservative or operative management on admission.
3. A review of treatment must be based on what appeared to be reasonable at the time of the event. As individual surgeons we may have strong opinions on how we may, or may not, have treated [Mr A]. We must, however, acknowledge a possible difference of opinion, if reasonable.
4. I take note of [Dr G's] report that completely disagrees with my opinion that conservative management was cautiously appropriate at the time of [Mr A's] admission to [DHB2] under [Dr E].
5. I do not have a fundamental problem with [Dr G's] opinion that he would not have treated [Mr A] conservatively. I suspect many a surgeon would agree with him.
6. The question is whether [Dr E's] treatment at the time was reasonable. My opinion is that it was.
7. [Dr G] uses in his report the criteria I outlined in my original report as proof that conservative management was contra-indicated.
8. ([Dr G's review] 1, page 2, b) 'Late presentation of perforation — False'

[Mr A] had an uncomplicated colonoscopy on [Day 1]. He did present to [DHB1] the next day ([Day 2] 21h37, > 24 hours approximately, as per the discharge summary of [DHB1]) and he was reviewed in [DHB2] by the end of the day on [Day 2] (48 hours). I considered the review of [Dr E] at that point 'delayed' enough to get a clear clinical opinion of his symptoms. The reason for distinction between early or delayed presentation is that it provides an arbitrary indication for operative or conservative management. Arbitrary, not absolute, the final decision is still based on clinical evaluation at the time of presentation. We must therefore accept [Dr E's] evaluation and findings at that time as the basis for trial of conservative management.

9. ([Dr G's review] 1, page 3, c) 'Localised peritonitis only — False'

I consider there to be enough documentation for this opinion, localised vs. general, to be interpreted either way. Therefore I default to the opinion of the most senior surgeon in this situation to be the most reliable. In this case more fitting with localised as determined by [Dr E].

10. ([Dr G's review] 1, page 3, d) 'Expectation of a small defect as a consequence of colonoscopy and possible polypectomy or biopsy — False'

The number and size of polyps removed may allow for an opinion on the likely size and location of the perforation. It is, however, no more or no less likely to be

correct. A large polypectomy may lead to a small defect, and a small polypectomy may lead to a large defect, and vice versa. In my opinion we can only say for certain that there was a perforation as a consequence of endoscopy. We can surmise that it was in the right colon, not based on the colonoscopy report, but based on the CT findings.

11. ([Dr G's review] 1, page 3, e) 'Retroperitoneal or sealed off perforation — False'

The CT report states that there is pneumoperitoneum and free fluid, most notably in the right abdomen. The presence of free air indicates a perforation at some point. Free air is not an indication of size or current status of perforation. I agree that the report does not specify a sealed off collection.

12. ([Dr G's review] 1, page 3, f) 'No evidence of gross contamination — false'

I agree that the report mentions ascites and that this can be interpreted as contamination or bowel content. It can also be interpreted as inflammatory fluid and not bowel content, as the CT does not differentiate between the two. The likely nature of the fluid is therefore interpreted in conjunction with the clinical findings. In this particular case, the clinical opinion of localised peritonitis would lean one to interpret the fluid as walled off and more likely to be inflammatory rather than free enteric or colonic content.

13. ([Dr G's review] 1, page 3, g) 'Good general health — False'

I completely agree with this statement.

14. ([Dr g's review] 1, page 3, comment) This paragraph appears to refer to a report that I have not read.

15. Based on the points raised prior to this comment in [Dr G's] report, he concludes that the criteria were not met for conservative management. Using the same points, as discussed by me above (8–13), I conclude that these points, together with an experienced clinician doing the assessment, indicated that a trial of conservative management was cautiously appropriate.

Whether the examinations undertaken by [Dr E] were adequate.

No deviation from standard of care.

1. My opinion remains unchanged.
2. More so when informed in the subsequent reports that [Mr A] was also reviewed personally by [Dr E] [in the] afternoon on admission to [DHB2].

Whether continuing with conservative management was appropriate when care was handed over to [Dr C] on [Day 4].

No deviation from standard of care on [Day 4].

To be interpreted with some caution.

1. I have read [Dr G's] report (... pages 3, 4)
2. I have read [Dr E's] report
3. [Dr E] answers some of my concerns in my original report by clarifying his interpretation of the two reviews the previous night ([Dr E] report page 8, Points 20, 21)
4. Continued conservative management on [Day 4] was cautiously still appropriate.

Any other matters you consider amount to a departure from the accepted standards.

Moderate to severe deviation from standard of care.

1. My opinion remains unchanged.
2. The sequence of events lead me to conclude that it should have been clear on [Day 5] that conservative management has failed.
3. I note the comments made by [Dr G] (... page 5) that he found evidence of poor vertical communication. This could have contributed to the poor decision made on [Day 5]. I acknowledge [Dr E's] opinion ([Dr E] report page 17, 18, point 52) that not all reviews by house surgeons are communicated to the senior doctors; however, several reviews on the same patient would usually alert the junior staff to at least discuss the care with the registrar on call. According to [Dr G's] report, this did not happen. A phone call to the registrar through the night may have highlighted to the day team that all is not as well as can be.
4. I do consider it the duty of the ward round to take note of the preceding 24 hours as recounted in the notes, not just as a snap shot of that moment.
5. I have reviewed the current documents provided and I have reviewed my original report and notes taken at the time of the review. I have not reviewed the clinical notes again. I do not believe that continued conservative management on [Day 5] could be justified when the previous 36 hours were reviewed.
6. It is also worth reflecting that if [Dr C] had done a Friday afternoon ward round as required by the on-duty model of care policy ([Dr E] report page 2, b), there may have been an opportunity to notice some of the reviews through the day. This ward round may also have set up the recognition that conservative management has failed on the morning of [Day 5].
7. I note comments on power differentials between surgeons and levels of clinician experience. It is my opinion that neither of these concepts is relevant to this complaint. Other than the report of [Dr G], no other report that I have seen mentions it.

Gerrie Snyman"

Appendix B: Early Warning Score

The Early Warning Score (EWS) is a system for scoring a patient's vital signs for the purpose of identifying acute clinical deterioration while in hospital. The vital sign parameters measured are respiratory rate (RR), oxygen saturation (SpO₂), heart rate (HR), blood pressure (BP), temperature, and level of consciousness. When any of the above parameters deviate from normal, a score of zero to three is assigned depending on the level of deviation. The scores are then added together to give an EWS, which triggers an escalation pathway. For an EWS of 1–5, the escalation pathway in place at [DHB2] required nursing staff to manage pain, fever or distress and to increase the frequency of vital sign monitoring. An EWS of 6–7 required a house officer review within 60 minutes and an increase of vital sign monitoring. An EWS of 8–9 required a house officer to review within 20 minutes and an EWS of 10 required a call to the Medical Emergency Team (MET).

Appendix C: Summary of Serious Adverse Event Review of DHB1 and DHB2

In summary, the Review identified the following concerns in relation to DHB1:

1. Colonoscopy

- a) There is no strict protocol about polyps resection.
- b) A number of polyps were removed from the right colon using a hot snare, and injection to create submucosal cushion for safety was not employed.
- c) The review team noted that “the use of hot snare in the manner used for [Mr A’s] screening colonoscopy was inconsistent with [DHB2’s] standard practice”.
- d) There was a significant thermal injury to the muscularis propia (muscular layer) that resulted in a delayed perforation.

2. Pathway for ED

- a) There was a delay between recognition of pain following colonoscopy and both a chest X-ray and antibiotic administration. It is not normal to re-present following colonoscopy so the pathway for ED to follow when a patient returns to the DHB following a colonoscopy is unclear.

In relation to DHB2:

- a) Neither the CT scan nor chest X-ray showed an absolute source of bowel perforation where surgical management is the default option. The review team are conscious that the CT scan is not indicating a clear perforation.

Appendix D: Summary of external review of DHB1 and DHB2

In summary, the external review identified the following:

DHB1

1. Role of the initial colonoscopy

There were aspects of the procedure, particularly the polypectomy technique, that could be improved. The colonoscopy was difficult due to the number of polyps to treat and a lack of time can increase the risk of complications. A second procedure may have been a better option. The conventional wisdom is to avoid “heat” especially coagulation current and especially in the right colon. A cold snare polypectomy for lesions 2cm and less is likely to have avoided the risk of perforation.

DHB2

2. The management of perforations after colonoscopy is controversial. There are no clear indications for conservative management for colonoscopy perforation, but with this approach a substantial improvement in a patient’s condition is expected within 24–48 hours.

3. Role of the CT scan on Day 3

a) The admitting registrar used the term “microperforation”, but the CT scan did not demonstrate a microperforation, but more likely a substantial defect in the colonic wall. The use of the term “microperforation” may have given a false sense of security that improvement was likely to occur.

b) The initial CT scan offered substantial clues about the likely clinical course and should have prompted a much lower threshold for operative management.

4. Subtleties of presentation

a) A well-known phenomenon that can occur after enteric² perforation known as the “period of illusion”³ may have led to the absence of guarding and rebound tenderness in the subsequent 48 hours.

b) Serum lactate⁴, albumin⁵ and C-reactive protein⁶ blood tests were not performed on Day 4 or Day 5. These may have been useful in predicting the course of intra-abdominal sepsis, and may have helped guide decisions about operative management earlier.

c) The presence of complex previous surgery may have been a deterrent towards operative management in the minds of the clinicians involved.

² In the intestines.

³ The initial contamination is diluted by reactive fluid secretion by the peritoneum which can lessen the physical signs.

⁴ Lactic acid in the blood.

⁵ A protein made by the liver. Low levels can indicate a problem with the liver or kidneys.

⁶ A high level of CRP in the blood is a marker for inflammation.

- d) Mr A showed a non-typical but not uncommon presentation of sepsis. Atrial fibrillation and fluctuating delirium, in the context of known enteric perforation, is a substantial clue to the presence of ongoing sepsis.
5. Opportunity for intervention
- a) There was an opportunity for a more senior assessment at DHB2 on the afternoon/evening of the Day 3.⁷
 - b) There was a second opportunity for intervention after the ward round on Day 4. There was a substantial physiological deterioration before the ward round with the systolic BP of 77 which improved to 100 and the team were reassured. In retrospect it seems this was due to progressive sepsis.

⁷ Dr E saw Mr A on the afternoon ward round on Day 3, but this was not documented.

Appendix E: Summary of Dr F's advice to ACC

In summary, Dr F advised:

1. Mr A sustained a perforation of the colon caused by the use of a hot snare to remove polyps. When polypectomy is performed the risk increases when polyps larger than 20mm are removed, and in Mr A's case two large polyps were removed.
2. A laparotomy should have been performed within 12–24 hours of Mr A's admission to DHB2.

Appendix F: Summary of Dr G's opinion to the Coroner

In summary, Dr G advised:

1. There should be a lower threshold for operative management of a comorbid patient.
2. Mr A did not meet the criteria for being treated conservatively, and most surgeons would have operated on admission to DHB2. The reasoning is set out below.
 - a) Mr A had a right colon perforation which meant that shortly after eating, faecal matter would be present in the right colon.
 - b) Mr A developed signs of perforation within 24 hours of the colonoscopy.
 - c) There is evidence that Mr A had peritonism at the time of admission to DHB1.
 - d) An injury is likely to be substantive and cover a substantial area given the size/number of polyps removed.
 - e) There was evidence of gross contamination (bowel content) in the CT scan and not ascites as reported in the CT scan.
 - f) Mr A did not have good health and suffered from many smoking-related diseases.
 - g) The CT scan undertaken at DHB1 showed free air, therefore the perforation was not sealed off or retroperitoneal.⁸

In respect of the care provided by Dr C on Day 5:

1. Mr A's condition was similar to his condition on the previous day when handed over by Dr E.
2. There was drift in Mr A's condition, with persistent issues with rapid AF and the development of delirium.
3. Dr C was not informed of any changes in Mr A's condition and considers that there was "poor vertical" communication within the team.
4. Owing to the power differential between Dr E and Dr C, it would have been difficult for Dr C to change the management plan and operate without significant new clinical evidence.

⁸ The area outside or behind the peritoneum.