Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

A Decision by the Deputy Health and Disability Commissioner

(Case 20HDC02040)

Introduction

1. This report is the opinion of Carolyn Cooper, Deputy Health and Disability Commissioner, and is made in accordance with the power delegated to her by the Commissioner.

2. The report discusses the care provided to the late Mrs A by Dr B and Health New Zealand|Te Whatu Ora (Health NZ) Te Tai Tokerau.[1]

3. The following issues were identified for investigation:

- *Whether Dr B provided Mrs A with an appropriate standard of care from 18 Month2[2] to 22 Month3 2018.*
- *Whether Health NZ provided Mrs A with an appropriate standard of care from 8 Month2 to 14 Month4 2018.*

[1] Formerly known as Te Whatu Ora|Health New Zealand. On 1 July 2022, the Pae Ora (Healthy Futures) Act 2022 came into force, resulting in all district health boards being disestablished and Health NZ being established in its place.
[2] Relevant months are referred to as Months 1–4 to protect privacy.

4. The parties directly involved in the investigation were:

Mrs A	Consumer
Dr B	Radiologist
Health NZ Te Tai Tokerau	District healthcare provider

5. Further information was received from the Coroner.

6. Dr C (surgical registrar) and Dr D (general surgeon) are also mentioned in the report.

7. Independent clinical advice was obtained from an experienced radiologist, Dr Graeme Anderson (Appendix A).

Background

Introduction

8. On 3 November 2020, the Coroner referred concerns about Mrs A's care to HDC. The referral contained a report from general surgeon Dr D, who was involved in Mrs A's care after she had presented to his outpatient clinic on 8 Month2. The report was submitted to the Coroner to assist in the inquest of Mrs A's death, and it contained Dr D's opinion that a delay in identifying the perforation of Mrs A's bowel (a hole in the digestive tract) may have been instrumental in her death.

9. My sincere condolences go to Mrs A's whānau for their loss.

10. At the time of her death, Mrs A was in her seventies and had a history of recent significant weight loss and other gastrointestinal symptoms. She had been receiving palliative care following a recent finding of a tumour.

11. Mrs A's whānau also expressed concern about the care provided to Mrs A, in particular the accuracy of the CT scan report completed on 16 Month2 and the delay in being advised of the correct CT scan results.

Timeline of events

12. Mrs A's clinical records show that she was referred to the surgical team at Whangārei Hospital by her general practitioner (GP) on two occasions in Month1 for weight loss, vomiting, low iron, and a palpable abdominal mass.

13. Mrs A's whānau stated that the GP had 'initially referred [Mrs A] … for a laparoscopy[3] and gastroscopy[4]' for her symptoms. However, the GP records do not show that these referrals were made. Instead, the GP completed a referral for an outpatient colorectal consultation. The referral stated that Mrs A had significant weight loss, abdominal pain/bloating with no sinister large bowel disease, and a palpable right-sided abdominal mass.

[3] A surgical procedure used to examine the organs in the abdomen. Mrs A's whānau initially referred to a laparoscopy; however, in a later statement they had asked whether a colonoscopy should have been done.
[4] A procedure that allows for an examination of the upper part of the digestive system.

14. On 8 Month2 Mrs A was seen by surgical registrar Dr C, who discussed her case with Dr D. Dr C recorded that Mrs A had 'weight loss without other concerning symptoms' but that it was important to exclude an underlying malignancy. Therefore, a plan was made for further blood tests and an urgent diagnostic CT scan to check for malignancy.

15. An abdominal and pelvic CT request form dated 8 Month2 noted the following information: '[Three] [m]onths of weight loss, [two] months of central abdominal pain. Malignancy?' Health NZ said that no clinical information about vomiting or bowel obstruction[5] was present on the CT request form.

16. The CT scan was completed by radiologist Dr B on 16 Month2. Health NZ stated that this was 'within the specified [two] week time period [as part of] the Faster Cancer Treatment (FCT) pathway[6]'. Health NZ said that the technical quality of the scan was 'diagnostic with no image degradation from artefact'.

17. The CT report noted the following findings:

> 'TECHNIQUE: CT abdomen and pelvis …
>
> REPORT: Depicted lower parts of the lungs with emphysematous[7] changes. Small nodule 7mm in the [lung]. Cystic[8] change in liver segment 8, diameter 7mm. Spleen, adrenal glands, kidneys, pancreas, gallbladder unremarkable. No sign of free fluid or free abdominal air. Depicted osseous[9] parts of the skeleton unremarkable, apart from geode[10] formation in the right hip joint.
>
> IMPRESSION: No obvious malignancy. Cystic change in segment 8, ultrasound follow up in 3 months suggested. Nodule in the lingula could be assessed in 3 months as well, non-contrast CT of the chest recommended.'

18. Dr B said that he was not made aware of Mrs A's previous surgical history. He noted retrospectively that Mrs A had undergone at least two previous abdominal surgeries for Caesarean sections.

19. On 25 Month2, Mrs A saw Dr D in his outpatient clinic and reported that her weight loss had stabilised. Dr D told the Coroner that he informed Mrs A that her CT scan had not shown any obvious causes for her symptoms, but that two minor abnormalities had been identified that required follow-up scans. Dr D said that as Mrs A was still experiencing intermittent vomiting, a gastroscopy[11] was requested with high priority (P1 category, which is the highest

[5] A gastrointestinal condition in which digested material is prevented from passing normally through the bowel.
[6] A pathway introduced in July 2012 to help coordinate timely access to appointments and tests for people with a high suspicion of cancer. The aim is to provide timely diagnosis and access to treatment, and better outcomes for people with cancer.
[7] Signs of a lung condition that causes shortness of breath.
[8] A small pocket of tissue filled with fluid, pus, or other substances.
[9] Bony.
[10] A cyst-like lesion.
[11] Procedure to examine the upper digestive system.

priority given to referrals). The gastroscopy was performed by Dr D on 29 Month2 and showed inflammation in the oesophagus, indicative of acid reflux, and fluid residue in the stomach, with 'no worrying abnormality'.

20. On 12 Month3, Mrs A presented to Whangārei Hospital's Emergency Department (ED) with vomiting, diarrhoea, weight loss, and unsteady gait. The ED documentation notes that Mrs A 'had not been right for [the last three months]'. Clinical notes document that she had low albumin levels, and that after treatment with intravenous (IV) fluid and other medications, her symptoms settled. Mrs A was discharged on 15 Month3 with a plan to be reviewed by Dr D in the outpatient clinic on 22 Month3.

21. Mrs A was readmitted to Whangārei Hospital on 18 Month3 (three days after discharge) with abdominal pain, nausea, vomiting, and 'anorexic' symptoms.[12] Over the course of Mrs A's admission, clinical notes document that she was malnourished, had low albumin[13] and sodium levels, substantial fluid retention, congestive heart failure, and pleural effusion.[14] Clinical notes also show that the medical team at Whangārei Hospital queried whether Mrs A had an underlying gastrointestinal pathology because of her worsening symptoms, and a number of medical tests were undertaken to investigate this.

Addendum to CT scan

22. On 22 Month3, Dr B re-reviewed Mrs A's CT scan (completed on 16 Month2) and issued an addendum. The addendum stated that 'on second assessment, the small bowel appears fluid-filled and slightly dilated, there appears to be narrowing of the lumen in the right iliac fossa.[15] This stenosis[16] may need further assessment, intraluminal contrast could further elucidate.'

23. Dr D was unsure why Mrs A's CT scan was re-reviewed on 22 Month3 but stated that '[his] presumption is that this was requested by the medical team following her admission under their care but [he did] not have evidence to support this'.

24. Dr B told HDC that at the time he reviewed Mrs A's CT scan initially, he saw 'no obvious pathology … assuming an intermittent problem'. He explained that he had assumed, as is often the case in his organisation, that the scan would be repeated if Mrs A's symptoms persisted.

25. Health NZ told HDC that Dr B cannot recall what triggered the re-review of the CT, but when the Clinical Director of the Radiology Department reviewed the audit trail for Mrs A's CT images, it showed that two radiologists had reviewed her CT images on 22 Month3 in short succession of each other. Health NZ noted that two hours later the addendum was added by Dr B, and therefore the 'most reasonable assumption' is that one of the radiologists noted the abnormality on the abdominal CT scan when he was reporting Mrs A's chest CT scan,

[12] Loss of appetite.
[13] A protein made by the liver.
[14] Fluid in the lung.
[15] The lower right-hand corner of the abdomen.
[16] Narrowing.

asked the second radiologist to review the abdominal scan, and then alerted Dr B to the finding and told him to add an addendum.

26. Dr B stated that following the issuing of the addendum, as per his usual practice he telephoned the CT scan requester on 22 Month3 to convey his findings to ensure that they could be acted upon. Dr B said that while he cannot recall his exact conversation with Dr D, it is possible that he left a voice message if Dr D did not pick up the call. Dr B said that in keeping with privacy guidelines, he may not have mentioned Mrs A's identity as he 'would not know who ha[d] access to the telephone'. However, he stated that in such a situation, he would have left his name and department and asked the recipient to call him back. Dr B said that he did not know when and how the CT addendum was finally conveyed to Dr D, but he could see that his recommendation for a re-review of the bowel was implemented by way of an MRI scan on 26 Month3.

27. Dr D confirmed to HDC that on the afternoon of 22 Month3 he received a recorded message on his telephone from what appeared to be one of the radiology doctors. However, Dr D did not recognise the name given. Dr D recalled that the message stated that a CT scan report had been amended but did not provide any patient details or details of the amendments made. Dr D said that he did not pick up the message until that evening and did not keep a copy of the message.

28. Health NZ's policy on 'Reporting Patient Data'[17] states:

> 'If it is discovered that a report has been issued and sent from the Radiology Department containing an error, an addendum to the original report is issued, the date of correction noted on the event and the amended report printed and issued after re-authorisation. The report will show as amended on the computer system. If the report is significantly different to the original report this is noted as such at the beginning of the report. The referrer's attention is drawn to the change by phone.'

Events after addendum added to CT scan

29. On 24 Month3 Mrs A was reviewed by the on-call surgical registrar, who documented that he had been informed of an amendment made to the 16 Month2 CT scan on 23 Month3. A further medical review was completed later in the day, and it was recorded that it was difficult to exclude obstruction and that the medical team was waiting for surgical and radiology advice.

30. On 25 Month3, the medical team met with Mrs A's whānau. The meeting notes record: '[W]e are still seeking a diagnosis but she is very unwell and there is a possibility this might not be something we can fix … something [is] not right in [her] abdomen.' MRI enterography[18] was also completed for the small bowel on 25 Month3. This revealed a 'mass lesion proximal to the terminal ileum [causing] proximal small bowel obstruction … likely representing a neoplasm'.

[17] Health NZ provided HDC with a copy of its policy dated March 2020.
[18] A scan that produces detailed images of the small intestine.

31. Dr D told HDC that on 27 Month3 Mrs A's CT scan was reviewed at a weekly general surgeon and radiologist meeting. Mrs A was then diagnosed with a chronic subacute small bowel obstruction[19] from a cancerous tumour and transferred to Dr D's care.

32. On 28 Month3, Dr D met with Mrs A and her whānau to advise that Mrs A likely had bowel cancer. Treatment options were discussed with Mrs A's whānau and, following an assessment by Dr D, it was determined that Mrs A was not fit for surgery or chemotherapy treatment due to a high risk of mortality. As such, treatment was moved towards symptom management.

33. After the whānau meeting, Dr D documented: 'I have explained that the CT report … has been amended and I received the change on Monday of this week [25 Month3] … I have apologised for the amendment CT report taking so long [and] that … the delay is unlikely to have made a difference to the long term outlook.' However, Dr D told the Coroner that '[t]he delay in diagnosis may have affected the outcome for [Mrs A]'. Dr D also told the Coroner that her weight loss would have adversely affected the outcome of her surgery.

34. In contrast, Mrs A's whānau said that Dr D told them that the treatment plan would have been different had the CT report not been misread, and he expressed concern over the delay (of six days) in advising the whānau of the incorrect CT scan report.

35. On 11 Month4, Mrs A developed acute abdominal pain and was diagnosed with peritonitis.[20] A CT scan on that day confirmed that this was the result of a perforated appendix.[21] Dr D told HDC that as it was unlikely that Mrs A would survive surgical intervention given her condition, she began palliative care and was transferred to Hospice on 11 Month4, for comfort measures.

36. Sadly, Mrs A died on 13 Month4.

37. An autopsy concluded that Mrs A's cause of death was 'septicaemia[22] caused by extensive peritonitis due to perforation of small bowel due to stricture[23] of the distal small bowel caused by a carcinoid [cancerous] tumour leading to obstruction'. The pathologist stated that the usual treatment of uncomplicated carcinoid tumours is bowel resection,[24] usually with a good outcome in the absence of surgical complications. However, the pathologist noted that numerous variables influence this decision and that every case is different.

Further information

38. Health NZ, Dr D, and Mrs A's whānau expressed concern about a delay in diagnosis of Mrs A's condition, in relation to the initial interpretation of the 16 Month2 scan, and the

[19] A partial obstruction of the small intestine.
[20] Inflammation of the lining of the stomach or abdomen.
[21] A hole in her appendix.
[22] A serious bacterial infection of the bloodstream.
[23] Abnormal narrowing of a body passage.
[24] Surgical removal of a part of the bowel.

availability of the addendum when added to the scan report. In a subsequent report to the Coroner, Dr D commented:

> 'The timing of the amendment of the CT (performed on 16 Month2) report is of potential importance. If the amended report had been available immediately then a different management plan would have been made and the most likely scenario would be that she would have been offered surgery at a time when she was potentially fit enough to have survived an operation … The delay in diagnosis may have affected the outcome for [Mrs A].'

39. Regarding the missed abnormality on the 16 Month2 scan, on 8 December 2020 Health NZ stated:

> 'We are in agreement that the original reading of the case could have been somewhat improved upon. The lesion in the right lower quadrant was visible on the initial imaging, although it was surrounded by several of the fluid filled bowel loops, which may have been a confounding factor in interpreting the images. Throughout the abdomen, the bowel loops appear more distended than expected which is suggestive of obstruction at some level.'

40. Both Health NZ and Dr B cited frequent interruptions as having affected the interpretation of the CT scan, but neither provided further details of the interruptions.

41. Health NZ told HDC that this case highlighted processes within the Radiology Department that could be improved in relation to the documentation of addendums, the reasons for them, and the subsequent communication around them with the referring team. The Clinical Director of Health NZ Te Tai Tokerau's Radiology Department noted that 'it would have been useful if the [communication with the referring team at the time of the addendum] was also documented in the addendum'.

42. Health NZ also told HDC that Dr B did not use the alert system that was in place within the Radiology Department. This relied on the radiologist clicking an alert flag outside the body of the report on the radiology information system. This would go to a worklist, and the administration team would send an email to the referring consultant alerting them to the incidental or abnormal finding. However, Health NZ's policy did not refer to this alert system.

43. Mrs A's whānau also expressed concern over a colonoscopy not being completed. Clinical records show that a colonoscopy had been considered by Dr D. However, Health NZ said that there was no indication for a colonoscopy based on Mrs A's clinical history and physical examination results. Further, it stated that a CT is the recommended investigation of choice in patients with weight loss and no localising symptoms, and that this was consistent with HealthPathways Guidelines.

Responses to provisional opinion

Dr B

44. Dr B was provided with a copy of the provisional report and given an opportunity to comment. He told HDC that he was disappointed that the quality of his CT scan report did

not meet the expected standards of practice and the impact this had on Mrs A. Dr B said that he has taken on board the comments raised within this report and has made improvements to his practice accordingly.

45. Dr B reiterated that the impact of environmental factors was an important consideration. He listed several factors as to why environmental factors were an important consideration. First, Dr B stated that he was one of the few radiologists who could provide interventional services, and therefore he was interrupted for this frequently. Secondly, he noted that Health NZ did not dispute the fact that his reporting of the CT scan had been influenced by heavy workload and interruptions. Thirdly, Dr B provided links to three news articles that highlighted environmental issues at Whangārei Hospital from November 2021 to April 2024.[25] A further link was also provided to a news article that referred to the Commissioner's call for urgent action in relation to Hawkes Bay's radiology crisis, which Dr B stated was similar to the crisis within Te Tai Tokerau.[26] Finally, Dr B stated that he had to use faulty software, which caused errors with text and required editing. This meant that reports were unable to be finalised, which added to the disruption and stress.

46. Notwithstanding the above reasons, Dr B acknowledged that it was difficult to prove how these factors affected his performance due to the length of time that has passed.

Health NZ

47. Health NZ was provided with a copy of the provisional report and given an opportunity to comment. Health NZ said that it accepted the findings.

Mrs A's whānau

48. The whānau were provided with a copy of the 'information gathered' section of the provisional report and given an opportunity to comment. Their comments have been integrated into the report.

Opinion: Dr B — breach

Introduction

49. In Month1, Mrs A experienced vomiting, diarrhoea, and unexplained weight loss. A CT scan of the abdomen and pelvis was requested following a surgical assessment on 8 Month2, and this was completed on 16 Month2. The CT report completed by Dr B initially reported 'no obvious malignancies'. However, on 22 Month3, Dr B re-reviewed the CT scan and issued an

[25] https://www.nzherald.co.nz/northern-advocate/news/whangarei-hospital-leak-close-to-mri-machines-shows-dire-state-of-building/UN7LBEH2BZESRHIIWTVOYYYEMI/
https://www.nzherald.co.nz/northern-advocate/news/whangarei-hospital-leak-close-to-mri-machines-shows-dire-state-of-building/UN7LBEH2BZESRHIIWTVOYYYEMI/#:~:text=%E2%80%9CWeather%20tightness%20is%20one%20issue,replaced%20four%20damaged%20ceiling%20tiles.%E2%80%9D
https://www.nzherald.co.nz/northern-advocate/news/cyclone-gabrielle-leaky-ceiling-closes-three-whangarei-emergency-department-rooms/CAOJ4QTBJ5GCHPM2OP7GTS2VME/

[26] https://www.nzherald.co.nz/nz/radiology-crisis-health-and-disability-commissioner-called-for-urgent-immediate-and-transparent-action-in-hawkes-bay/4LTAEZWSJBD63CNT4FCYSYZTYA/

addendum that noted 'a stenosis in the right lower quadrant'. Subsequently, Mrs A was diagnosed with a bowel obstruction secondary to a cancerous tumour, and she passed away.

50. This opinion considers whether Dr B provided Mrs A with a reasonable standard of care. In forming my decision, I have drawn on the independent clinical advice provided by radiologist Dr Graeme Anderson. My decision and reasoning are set out below.

Quality of CT scan report — breach

51. Regarding Dr B's reporting of the CT scan, Dr Anderson advised that the report section was 'very brief' and failed to mention several structures, including the entire gastrointestinal tract, the retroperitoneal structures, and the pelvic organs, and whether or not these appeared normal. Dr Anderson advised that these would be important structures to mention in the CT report, even if they were normal, as the most likely cause of weight loss in a woman of Mrs A's age is an underlying abdominal or pelvic malignancy.

52. Dr Anderson acknowledged that the failure to mention these structures '[did] not definitely confirm that they were not evaluated', but as the dilated small bowel loops were not mentioned, and there is no evidence of a more intensive search for an obstructing cause, this suggests that these structures were not attended to. Dr Anderson advised that the lack of a clear and comprehensive report was a moderate departure from the standard of care. I accept this advice.

53. Health NZ agreed with Dr Anderson's advice and stated that the reporting of the CT scan by Dr B was substandard and that the original reading of the case 'could have been somewhat improved upon'. Dr B submitted that he 'routinely evaluates the above referred structures, but [does] not necessarily mention or document them if they appear normal'. Notwithstanding this, Dr B accepted that he could have described the bowel, pelvic structures, and retroperitoneal structures in more detail.

54. Dr Anderson advised that the use of synoptic reporting[27] has been shown to improve accuracy of abdominal CT reporting and act as a checklist to ensure that all important abdominal structures are addressed. Dr Anderson said that this particular reporting method ensures that all important structures are attended to, in light of the busy nature of radiological practices.

55. In response to the above, both Dr B and Health NZ said that Health NZ does make use of synoptic reporting practices. Health NZ stated that while this was not a widespread practice in 2018, it has been used increasingly since 2020, and the Radiology Department has encouraged individual radiologists to create their own templates, often adapted from widely available standard templates, recognising that a drawback of template reports is that they can clash with 'any individual radiologist's natural reporting style'.

[27] A style of reporting that aims to improve the completeness, accuracy, and ease of creating the report.

56. Dr B confirmed that he has 'a standard way of looking at a study and a template that [he] follows'. However, he also acknowledged that a template cannot capture all cases and must be varied to encompass different presentations.

57. While I accept that synoptic reporting may not have been a widespread practice within Health NZ's service in 2018 and that the use of templates can have limitations, I consider that Dr B failed to exercise reasonable care in his reporting of the CT scan, as there was no mention of several important anatomical structures within the report. Accordingly, I find that Dr B failed to provide Mrs A with an appropriate standard of care and breached Right 4(1) of the Code of Health and Disability Services Consumers' Rights (the Code).

Detection of terminal lesion — no breach

58. Dr B did not document the finding of a stenotic lesion in the ileum in his initial read of Mrs A's CT scan.

59. This Office asked Dr Anderson to conduct a blind reading of Mrs A's CT scan of 16 Month2, with minimal knowledge of Mrs A's clinical history, and he was able to identify a 'distal small bowel obstruction due to a stenotic lesion just proximal to the ileocaecal valve[28]'.

60. Health NZ said that two of its radiologists had also retrospectively spotted the lesion in the right lower quadrant on the initial imaging, although it was surrounded by several 'fluid filled bowel loops', which may have been a confounding factor in the interpretation of the images. Health NZ said that throughout the abdomen, the bowel loops appear more distended than expected, which was suggestive of obstruction at some level.

61. Dr Anderson noted that initially Dr B did not report the stenotic lesion in the terminal ileum, or the small bowel dilation representing distal small bowel obstruction. However, Dr Anderson advised that he does not consider the failure to identify a subtle terminal ileal lesion initially as a deviation from the expected standard of care. Dr Anderson cited three reasons for this.

62. First, Dr Anderson advised that intravenous contrast-enhanced CT, as was used in this case, is an ineffective method for identifying small bowel tumours and causes of weight loss. He stated that these lesions are identified in only 40% of routine contrast-enhanced CTs, and the diagnostic yield of a CT scan for weight loss is only 30%. Furthermore, he explained that it is well recognised by radiologists that routine contrast-enhanced CT is insensitive for identifying gastrointestinal pathology, and that a CT scan is more accurate in demonstrating the spread (staging) of gastrointestinal malignancies, and he also noted that with the liver, nodal and peritoneal involvement is better appreciated.

63. Secondly, Dr Anderson said that many clinicians do not understand the likely diagnostic yield of some radiology tests, and because CT scans are readily available and sometimes able to answer clinical questions, a negative test will falsely reassure that '[n]o abnormality is present' rather than '[n]o abnormality is identified'. Dr Anderson advised that it is important

[28] A sphincter muscle that separates the small intestine and the large intestine.

that if a test with a low diagnostic yield is requested and does not identify an abnormality, then additional investigations (not necessarily radiological) should be performed.

64. Thirdly, Dr Anderson noted that although he identified the lesion, this was done in a setting that does not mimic the normal working environment of radiologists. Regarding the two radiologists who were also able to identify the lesion, Dr Anderson said that this was done in the context of further clinical information (in keeping with a small bowel obstruction), which in turn prompted a more focused search and avoided framing bias.[29] Similarly, he noted that when Dr B reviewed Mrs A's CT scan the second time, this was done with the knowledge that she had been readmitted to hospital a month after the original review.

65. I accept Dr Anderson's advice. I can appreciate how the differing interpretations of the CT scan has raised concerns as to whether Mrs A received a delayed diagnosis. However, when assessing the care provided retrospectively, I endeavour to review the facts and base my opinion on what was known at time of the events, rather than what is known at the time of the complaint. With this and Dr Anderson's advice in mind, I consider that Dr B provided a reasonable interpretation of the CT scan on 16 Month2, and I am not critical of Dr B's lack of reporting of the lesion within the ileum. However, I also accept Health NZ's comments that the original radiology reading could have been improved.

Effect of environmental factors on reporting — other comment

66. Dr B alluded to several environmental factors having affected his ability to report abnormalities. This included issues with the infrastructure at Whangārei Hospital, and issues with radiology reporting software. Health NZ also acknowledged that radiology reporting was heavily influenced by workload and interruptions at the time of the reporting.

67. I acknowledge both Dr B's and Health NZ's comments regarding the nature of radiology reporting. I have considered the issues Dr B has referred to carefully and, while I accept that these issues had an impact on Dr B's workflows, I do not consider these factors to fully mitigate the errors made by Dr B. In my opinion, the onus remains on Dr B to provide an appropriate standard of care.

68. In addition, I note that Dr B was not able to provide specific evidence of how these factors had affected his reporting ability directly on 16 Month2. I acknowledge that a significant amount of time has passed since these events, and understandably this has affected Dr B's recollection. However, if the environmental factors had been detrimental to the point of affecting patient safety, I would have expected an incident report to have been completed in respect of these issues, and no such report has been provided to this Office. Nevertheless, I appreciate Dr B highlighting the infrastructure issues, and I have raised these with Health NZ.

[29] The 'framing' effect is the principle that our choices are influenced by the way they are framed through different wordings, settings, and situations.

Conclusion

69. In summary, I consider that the CT report completed on 16 Month2 was inadequate as it did not mention the gastrointestinal tract, the retroperitoneal structures, or the pelvic organs, and whether or not these appeared normal. Accordingly, I find that Dr B breached Right 4(1)[30] of the Code.

Opinion: Health NZ Te Tai Tokerau — adverse comment

70. As a healthcare provider, Health NZ Te Tai Tokerau is responsible for providing services in accordance with the Code. This section considers whether any systems issues may have affected Dr B's reporting of the CT scan on 16 Month2 and 22 Month3.

Report addendum — adverse comment

71. As stated previously, concerns were raised about the timeliness of the availability of the report addendum that was attached to Mrs A's 16 Month2 CT scan on 22 Month3.

72. Dr B said that as per his usual practice, he telephoned the CT requester on 22 Month3 after issuing the addendum, in order to convey his findings. Dr B cannot recall the event but said that he may have left a voice message with a request for Dr D to call him back. Dr B stated that he may not have mentioned the patient details, due to concerns about privacy. Dr D confirmed that he received a voice message from a radiologist on 22 Month3, but he could not provide HDC with a copy of the message. Therefore, the contents of the message are unknown.

73. Dr B told HDC that he followed the Radiology Department policy when making the patient addendum. The policy states that when an addendum is issued that is different from the initial report, then the radiologist is to bring these results to the referrer's attention by telephone.

74. Health NZ said that the addendum was added in a timely fashion after the abnormality was noted, and the referring clinician was contacted appropriately by Dr B. However, Health NZ noted that the documentation of addendums could have been improved by adding the reasons for the addendum and the subsequent communication with the referring team.

75. Dr Anderson was provided with a copy of Health NZ's policy, and he advised that Dr B followed the policy. Dr Anderson considers that Health NZ's policy 'falls short in closing the process of contacting the doctor and … also does not proscribe a backup process for those times when the doctor may not be available to take the call'. Dr Anderson suggested that an alert system be implemented, where an email would be sent to alert the referring doctor of an addendum.

76. In response to the above, Health NZ said that there *was* an alert system in place at the time of events. Health NZ explained that the system at the time 'relied on the radiologist selecting an alert flag outside of the body of the report on the radiology information system … This

[30] The right to services of an appropriate standard.

went to a worklist where the administration team would send an email to the referring consultant, alerting them to the incidental or abnormal finding.'

77. The policy provided to HDC does not refer to the alert system, and it is not known how widely this system was used within Health NZ Te Tai Tokerau's Radiology Department. Health NZ acknowledged that at the time of these events there were deficient processes relating to the documentation of addendums. Therefore, it completed an internal audit relating to radiology reports with addendums advising of significant misses and found that 46% of the audit sample did not have any documentation regarding whether a clinician was contacted and alerted to the new report additions. However, the internal audit does not appear to have reviewed Health NZ Te Tai Tokerau's alert systems and their use.

78. From the information provided to me, I consider that Dr B followed the processes that were in place at Health NZ. However, I am critical of the alert system and the process that was in place for documentation of addendums. Clear documentation of when and how the addendum was conveyed to the relevant parties could have prevented confusion in Mrs A's care and the subsequent delay caused by the confusion. However, the alert system and process for documentation is not outlined within Health NZ's policy. Although Health NZ has stated that it is extremely unlikely that a radiologist would not notify a relevant clinician if a significant miss was identified, I consider that Health NZ's internal audit finding reflects a systems issue in relation to the use of the alert system and the reporting of addendums.

Recording of IV contrast used — other comment

79. The CT report did not refer to the IV contrast used. Dr Anderson advised that it is standard practice and within the International Accreditation New Zealand (IANZ) protocol to include the volume and type of IV contrast given and to note in the CT report whether there were any adverse reactions to the contrast. Dr Anderson considered that omitting to mention within the CT report the IV contrast dose and whether this led to any adverse reactions was a mild departure from the accepted standard of care.

80. Dr B told HDC that he does not agree that his report was substandard in this respect. He said that at Health NZ it was not customary nor mandatory to include the volume and type of IV contrast in a report, and that usually this information was documented by the technical staff in the radiology information system. Dr B stated that this information is not particularly helpful unless a complication arises, and in the event of such a complication he would document the event along with the severity, treatment, and causative contrast agent, as well as make a note in the hospital information system to prevent further occurrences. Notwithstanding the above reasons, Dr B stated that he has taken on board Dr Anderson's comments and will now document the contrast type, dose, and any adverse reactions in his reports.

81. Health NZ stated that it has reviewed the Radiology Department's documentation of the contrast type, dose, and reactions and has found variability in practice. I am pleased that Health NZ has reviewed this aspect of its reporting.

Changes made since events

Dr B

82. Dr B told HDC that this has been a valuable learning lesson and that he has taken the comments made by my clinical advisor seriously. Dr B said that in November 2020 he made the following changes:

a) He ensures that his reports document any and all evaluations of the structures and organs reviewed, even if they appear normal.

b) He will apply templates used for abdominal reporting more vigorously to ensure that these are in line with synoptic reporting practices.

c) In the future when issuing another addendum, he will inform the referrer of the scan by email in addition to the usual telephone call, as an additional layer of safety.

d) He reviewed the IANZ protocol referred to by Dr Anderson and will document the contrast type, dose, and any adverse reactions within his radiology reports.

83. Dr B said that in response to the proposed recommendations, he undertook the following:

a) He provided a written apology to Mrs A's whānau for the breach of the Code identified in the provisional report.

b) He implemented a 'checklist' structured reporting style with clear headings for each organ in the body, to provide guidance for relevant organs to be evaluated carefully, as per Dr Anderson's advice. Evidence of five (anonymised) cases where this reporting style has been used has been provided to HDC.

Health NZ Te Tai Tokerau

84. In December 2020, Health NZ told HDC that it has made, or will make, the following changes:

a) It will homogenise documentation of contrast type, dose, and reactions in radiology reports in line with RANZCR and IANZ recommendations.

b) It will revise its formal procedures to include some formal guidelines regarding communication and documentation around addendums.

c) It will undertake a further addendum audit to review guideline adherence.

d) It will recommend to Dr B that he consider using structured reporting templates to ensure that all areas are covered and reported in more detail.

e) It will present the findings of its internal audit on addendum reporting to the Radiology Department.

f) It has completed a random audit of 20 reports by Dr B to ensure that he is meeting standards. The audit found only one minor discrepancy.

g) A reporting macro has been added to the body of the radiology report. Health NZ said that this is a 'more integrated solution' that automatically sends the result to a special list for the referrer to view.

Recommendations

Dr B

85. I acknowledge the changes made by Dr B in response to the provisional report and I am satisfied that he will carry forward the lessons learnt from this case. As such, have no further recommendations to make.

Health NZ Te Tai Tokerau

86. I recommend that Health NZ Te Tai Tokerau:

a) Provide a written apology to Mrs A's whānau for the deficiencies identified within this report. The apology is to be sent to HDC, for forwarding to Mrs A's whānau, within one month of the date of this report.

b) Provide HDC with the results of the further addendum audit to review guideline adherence mentioned in the response of 1 March 2021, within one month of the date of this report.

c) Provide HDC with an updated copy of the Radiology Department's policy on 'Reporting Patient Data', which is to include formal guidelines regarding communication and documentation around addendums, and the alert system in place. The updated policy is to be sent to HDC within one month of the date of this report.

d) Undertake an audit of 50 random radiology reports where IV contrast has been used, to determine the number of occurrences in which the documentation does not include the contrast type, dose, and reactions in the report, in line with RANZCR and IANZ recommendations. A summary of the audit findings and corrective actions is to be sent to HDC within three months of the date of this report.

e) Confirm that the findings of its internal audit on addendum reporting has been presented to the Radiology Department, within three months of the date of this report.

Follow-up actions

87. A copy of this report will be provided to the Coroner.

88. A copy of this report with details identifying the parties removed, except Health NZ Te Tai Tokerau, Whangārei Hospital, and the clinical advisor on this case, will be sent to the Medical Council of New Zealand, and it will be advised of Dr B's name.

89. A copy of this report with details identifying the parties removed, except Health NZ Te Tai Tokerau, Whangārei Hospital, and the clinical advisor on this case, will be sent to Health New Zealand|Te Whatu Ora and the Royal Australian and New Zealand College of Radiologists, 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 advice was obtained from radiologist Dr Graeme Anderson:

'CT Abdomen and Pelvis with Contrast performed 16 [Month2]

Indication.

3/12 weight loss >10kg. 2 months central abdominal pain.? Malignancy.

Technique:

CT Abdomen and Pelvis. Intravenous contrast (quantity and type and timing not supplied). No oral contrast.

3 Plane MPR reconstructions and lung windows of lung bases.

Prior Imaging review not part of this review but should have been performed at the time of reporting the CT if available.

Report (Blind Read)

Moderate distension of small bowel loops with distal ileal loops measuring up to 45 mm.

The colon is collapsed. The appendix is not confidently identified.

In the distal ileum just proximal to the ileocaecal valve (2 cm) there is a focal area of stenosis measuring approximately 35 mm in length with some shouldering of the proximal aspect (best appreciated on the sagittal images).

No enlarged ileal or mesenteric nodes (the largest SMA node measuring only 7 mm in short access diameter).

Small low attenuation nodule in the subdiaphragmatic liver (segment 7) measures 8 mm.

No other hepatic abnormality.

Spleen and pancreas are unremarkable.

Both kidneys demonstrate small simple cysts. No hydronephrosis.

No enlarged paraaortic nodes.

No ascites or free air.

Lung bases are clear with some minor atelectasis in the lingula.

Lumbar spondylosis and bilateral hip arthrosis.

Conclusion

Distal small bowel obstruction due to a stenotic lesion just proximal to the ileocaecal valve.

In the clinical setting the differential includes a distal small bowel neoplasm, adenocarcinoma or more commonly at this site carcinoid tumour.

The differential includes inflammatory bowel disease (ie Chrohn's disease) and infectious enteritis although these are considered less likely in the clinical context and with the imaging appearances.

Gastroenterology referral is recommended as the lesion may be visible via colonoscopic evaluation of the terminal ileum.

Significance of and follow up imaging for the small hepatic lesion (most likely a cyst) will be predicated on histological findings of the terminal ileal lesion.'

The following advice was received from Dr Anderson on 29 September 2022:

'**Overview**

I was asked by the Commissioner to provide an opinion on Case Number 20HDC02040. I initially performed a blind review of the imaging (completed 31/08/22).

This report has been requested after details of the case have been provided, including copies of radiology reports and clinical information. (Received 13/09/22).

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

I have no conflicts of Interest around this case.

Qualifications:

I am a Radiologist who has been qualified for over 20 years.
Degrees: BHB (Auckland) 1987
MBChB (Auckland) 1990.
FRANZCR 2000.
Post graduate training: Chest Imaging Brompton Hospital London 2007.
ACR PET Course (Reston VG) 2009.

Positions:

Radiologist Counties Manukau Health 1999 to present.

Co-Lead of MRI Radiologist co-lead CMH/NDHB Lung Cancer MDM 2014 to present.

Network Training Director Northern Region Radiology Training Program (2018 to 2022)

Radiologist Ascot Radiology 2007 to present (Current Lead of PET CT)

Northern Region PET Variance Committee Chair 2013 to Dec 2019.

I have had a subspecialty interest in Thoracic Imaging for over 20 years and have publications and international presentations in the area.

Referral Instructions from the Commissioner:

Documents provided

Enclosed please find the following documents:

1. Letter of complaint dated 2 November 2020
2. [Dr B's] response dated 22 August 2022
3. Northland DHB's response dated 8 December 2020.
4. [Dr D's] response dated 26 November 2020.
5. Clinical records from Northland DHB.
6. Policy entitled "Reporting Patient data".

If you find there is information missing or a relevant fact that has not been covered, please contact me. We would prefer to try to provide all information before you provide your report.

Expert advice requested

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

In particular, please comment on:

1. The adequacy and accuracy of [Mrs A's] CT report dated 16 Month2 provided by [Dr B].
2. To what degree, if any, does the CT reporting in this case depart from accepted standards of practice.
3. The adequacy of the policy entitled Reporting Patient data
4. Any other matters in this case that you consider warrant comment.

For each question, please advise:

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

Background

[Mrs A] underwent a CT abdomen and pelvis scan at Whangārei Hospital on 16 [Month2]. This request was generated following assessment at surgical outpatients clinic on 8 [Month2].

The clinical history provided to the radiologist was "3/12 hx of weight loss > 10kg, 2 months of central abdominal pain. Malignancy?".

[Dr B] did not report any significant abnormalities when he reported the CT scan (authorised on 18 [Month2]) but did report a small hepatic cyst and a possible small nodule in the lingula. 3 month follow up scans (liver USS and CT Chest) were recommended.

The patient was admitted to Northland Hospital on 16 [Month3] with acute symptoms. On 22 [Month3] [Dr B] was asked to review the scan and issued an addendum the same day, this time noting "a stenosis in the right lower quadrant" and recommending an MRI.

[Mrs A] was subsequently diagnosed with a chronic subacute small bowel obstruction, presumably from a tumour. Sadly, [Mrs A] died of septicaemia due to a perforated bowel, on 14 [Month4].

CT Performed 16 [Month2]. Authorised 18 [Month2].

The report follows a standard layout and includes provided clinical information noting

CLINICAL INFORMATION:

3/12 weight loss >10kg. 2 months central abdominal pain. Malignancy?

TECHNIQUE outlines "CT abdomen and pelvis, pv phase."

It would be standard practice here and IANZ protocol to include the volume and type of intravenous contrast given and to note if there were any adverse reactions to the contrast.

REPORT:

Depicted lower parts of the lungs with emphysematous changes. Small nodule 7 mm in the lingula. Cystic change in liver segment 8, diameter 7 mm.

Spleen, adrenal glands, kidneys, pancreas, gallbladder unremarkable.

No sign of free fluid or free abdominal air.

Depicted osseous parts of the skeleton, unremarkable, apart from geode formation in the right hip joint.

The Report section is very brief and makes no comment of any hollow viscus structures, stomach, small or large bowel. Retroperitoneal structures, especially aorta and para-aortic nodes are not mentioned. The female pelvic organs especially uterus and ovaries (and bladder) are not mentioned either.

These would be important structures to mention (even to note they are normal) as the most likely cause of weight loss due to an underlying abdominal or pelvic malignancy in a woman of this age is the Gastrointestinal tract especially colorectal, followed by haematological (lymphoma) and then gynaecological malignancy.

Although not mentioning these structures does not definitively confirm that they were not evaluated, the fact that the dilated small bowel loops were not mentioned, and that the subsequent more intensive search for an obstructing cause did not occur suggests they were not attended to.

Structured (Synoptic reports) have been shown to improve accuracy of particularly abdominal CT reporting and act as a checklist to ensure attention is given to all the important structures. They are particularly helpful in busy departments with many interruptions which unfortunately are part and parcel of modern Radiological practice.

IMPRESSION:

No obvious malignancy. Cystic change in segment 8, ultrasound follow up in 3 months suggested. Nodule in the lingula could be assessed in 3 months as well, non-contrast CT of the chest recommended.

The Impression technically answers the clinical question "Malignancy?". It then suggests follow ups of small incidentals. It would not be standard practice to follow up hepatic cysts (particularly <10 mm).

A case could be made to follow up the 7mm lingula "nodule" however as per British Thoracic Society or Fleischner guideline (3 months is acceptable as per BTS).

The stenotic lesion in the terminal lieum, was not identified and the small bowel dilation representing early distal small bowel obstruction was not reported.

Intravenous contrast enhanced CT (as opposed to CT colonography or CT enterography) is insensitive for gastrointestinal malignancy with reported diagnostic rate of only 40%, for small bowel tumours (up to 90% for CT enterography).

The diagnostic yield of CT for "Weight Loss" is approximately 30%. Thus, CT is an insensitive method for identifying causes of weight loss and its sensitivity especially in identifying small bowel tumours is low.

What is the Standard of Care?

I find the report to be substandard in two ways.

1. It does not document the IV contrast given.
2. It is very brief and fails to mention whether several structures including the entire GI tract, the retroperitoneal structures and the pelvic organs are normal or not.

Failing to perceive the very subtle terminal ileal lesion does not deviate from the standard of care however because there is low sensitivity of routine contrast enhanced CT for small bowel lesions.

How would it be viewed by Peers?

It is well recognised by Radiologists that routine contrast enhanced CT is insensitive for GI pathology. CT is more accurate in demonstrating spread (staging) of GI malignancies however with liver, nodal and peritoneal involvement better appreciated.

In this case the initial CT did not demonstrate any metastases.

Dedicated imaging modalities for diagnosing GI malignancy; CT Colonography and Enterography and small bowel MRI (MRE) have been developed to improve diagnostic accuracy.

Many clinicians do not understand the likely diagnostic yield of some imaging radiological tests and because CT is readily available and sometimes will be able to answer the clinical question, a negative test will falsely reassure that "No abnormality is present" rather than "No Abnormality is identified".

It is important if a test with low diagnostic yield is requested that does not identify an abnormality that additional investigations (not necessarily Radiological) are performed.

I note that [Dr B] was asked to review the scan and issued an addendum after the patient was readmitted approximately 1 month later.

Although the clinical record is not clear it seems that this was after review in a clinical meeting where the case was reviewed by another Radiologist.

At the meeting a colleague (and peer) was able in retrospect to identify the lesion. This however was in the setting that imaging and clinical features were now of small bowel obstruction, i.e., a clearer view of the clinical picture, prompted more focused search (framing bias).

The addendum and the mechanism for communicating this will be discussed along with the policy "Reporting Patient Data" later in this review.

What is the departure from the Standard of Care?

1. Mild departure of standard of care for not mentioning intravenous contrast dose and any adverse reaction in "Technique".
2. Moderate departure of standard of care, for the lack of a clear and comprehensive systematic report.

The Radiologist not perceiving the subtle terminal ileal lesion is not a departure from the standard of care.

These lesions are identified in only about 40 percent of routine contrast enhanced CTs.

The vague clinical question "? Malignancy" in all likelihood also reduced the chance of the terminal ileal lesion being identified.

CT Addendum. 22 [Month3]. 12:26 and Reporting Patient Data policy (provided version May 2020)

"On second assessment, the small bowel appears fluid filled and slightly dilated, there appears to be narrowing of the lumen in the right iliac fossa. This stenosis may need further assessment, intraluminal contrast could further elucidate. CS."

The document provided "Reporting Patient Data" has this to say about how an addendum to a Radiology Report is to be handled at NDHB.

Amended Reports

If it is discovered that a report has been issued and sent from the Radiology Department containing an error, an addendum to the original report is issued, the date of correction noted on the event and the amended report printed and issued after re-authorisation. The report will show as amended on the computer system. If the report is significantly different to the original report this is noted as such at the beginning of the report. The referrer's attention is drawn to the change by phone.

Similarly if the final report is significantly different to the preliminary report (verbal or written), the referrer's attention is drawn to the change by phone.

(See also Radiologist Technical manual policy "Radiologist Duties and Responsibilities", 5050/WR/RAD/2/020.)

This NDHB policy has in this case been adhered to by [Dr B] in that he attempted to phone and left a message to the referring surgeon as they were not available to take the call.

There does seem to have been a disconnect in this process and the message does not appear to have been received (or at least not in a timely manner).

The document falls short in "closing" the process of contacting the doctor and does not require the Reporting radiologist making the addendum to document to whom and when the phone call was made in the addendum report.

The policy also does not proscribe a "back up process" for those times when the doctor may not be available to take the call.

In 2016 I was part of the team credentialling NDHB radiology department. At that time a Major recommendation was implementation of an "Alerts" system for this very situation.

"2. Encourage the Implementation of an Alerts system.

a. Improve communication of unexpected findings with GPs and Hospital Clinicians alike.

b. Implementation of this this could begin now with the ability to also institute as part of a more integrated electronic ordering and results system."

An Alerts system acts as a backup when the Radiologist is unable to contact the referring doctor with an urgent report (or an unexpected finding of less import, or an addendum). It involves some clerical support to send an email (in some situations fax or even text message) with a receive receipt to inform the referring doctor.

I was under the impression that such a system was being developed in NDHB, but either it has not been developed or was not used in this case.

Of note a minor recommendation of the credentialling was:

"2.Develop Proforma/synoptic/structured reporting and templates especially for oncology reporting but may be applied in other areas."

What is the Standard of Care?

[Dr B] followed the department policy of "Reporting Patient Data" in line with the local policy when making his addendum and attempted to notify the Surgeon by phone.

The report was also available on the Hospital Information System for the clinicians to review.

Such a document should however include a requirement to document the attempted communication and back up communication avenues to ensure the result was received in a timely manner in the Addendum or Radiology report.

The implementation of an Alerts system (as recommended in the 2016 accreditation) acts as backup to these processes, and also automatically provides documentation and proof of receipt.

What is the departure from the Standard of Care?

[Dr B] in reviewing the case and issuing the addendum did so in line with the policies of NDHB.

The policy itself departs from the standard of care in one significant way, in that it does not require the documentation in the report of the attempt (or unsuccessful attempt in this case) to contact the referring clinician of this case.

It also provides no mechanism for a back up system to ensure that the urgent report or addendum was received.

Recommendations:

1. [Dr B] and other radiologists in the department adapt structured/synoptic reporting practices (as per 2016 credentialling report).
2. [Dr B] and other radiologists in the department document contrast type, dose and any adverse reactions in their reports.
3. The "Reporting Patient Data" document is revised to include the need to document the attempt to contact the referring clinician with urgent and addendum findings in the report.
4. That NDHB Radiology department (if it has not already) implements an "Alerts" system to ensure that urgent or unexpected findings are received by the referring clinician in a timely and secure manner.

Dr Graeme Anderson
Radiologist
BHB MBChB
FRANZCR.
29/09/22

References:

1. RANZCR Clinical Radiology Written Report Guidelines (published 2012).
2. BTS Guidelines for the Investigation and Management of Pulmonary Nodules Thorax 2015
3. NDHB Radiology Credentialling report 2016 (available on request)'