Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

A Decision by the Deputy Health and Disability Commissioner

(Case 21HDC00557)

Complaint and investigation

1. The Health and Disability Commissioner (HDC) received a complaint from Ms B and Mrs A about the care provided to their late father and husband, Mr A, by Waitematā District Health Board (now Health New Zealand|Te Whatu Ora (Health NZ) Waitematā).[1] The following issue was identified for investigation:

   - *Whether Health New Zealand|Te Whatu Ora Waitematā provided Mr A with an appropriate standard of care in Month6[2] 2020.*

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

3. The parties directly involved in the investigation were:

Ms B	Complainant/daughter
Mrs A	Complainant/wife
Health NZ Waitematā	Provider

[1] On 1 July 2022, the Pae Ora (Healthy Futures) Act 2022 came into force, which disestablished all district health boards. Their functions and liabilities were merged into Health New Zealand|Te Whatu Ora. All references in this report to Waitematā District Health Board now refer to Health NZ Waitematā.
[2] Relevant months are referred to as Months 1–9 to protect privacy.

Names have been removed (except Health NZ, Health NZ Waitematā, North Shore Hospital and the advisor) to protect privacy. Identifying letters are assigned in alphabetical order and bear no relationship to the person's actual name.

4. Also mentioned in the report:

Dr D	Respiratory physician
Dr E	Consultant physician

5. Further information was received from:

RN C	Registered nurse
The Office of the Coroner[3]	

6. Independent clinical advice was obtained from an internal medicine specialist, Dr Richard Shepherd (Appendix A).

Information gathered during investigation

Introduction

7. Mr A, aged in his seventies at the time of events, presented to North Shore Hospital on 8 Month6 with symptoms of light-headedness, chest pain, shortness of breath (SOB) and possible haematemesis (vomiting of blood). He was stabilised in the Emergency Department (ED) and admitted to a medical ward on 9 Month6 with unstable angina,[4] having a background of severe ischaemic heart disease (IHD),[5] pulmonary hypertension,[6] cor pulmonale,[7] and chronic obstructive pulmonary disease (COPD)[8] with a component of asthma.

8. Mr A was discharged on 18 Month6. Following discharge, his condition deteriorated rapidly, and he was re-admitted to hospital the following day after becoming increasingly short of breath overnight. Following a hypotensive[9] event and cardiorespiratory arrest, resuscitation attempts were unsuccessful, and, sadly, Mr A passed away on 19 Month6. I take this opportunity to extend my sincere condolences to Mr A's family and friends.

Events leading up to complaint

9. In his report to the Coroner, Mr A's general practitioner (GP) stated that Mr A had 'quite an extensive medical history', including severe IHD, a myocardial infarction (heart attack) in

[3] Contained in the information provided by the Office of the Coroner was a statement from Dr E, a consultant physician, and Mr A's general practitioner.
[4] A type of chest pain caused by reduced blood flow to the heart.
[5] A condition in which blood to the heart is reduced, usually due to blockages in the coronary arteries, preventing the heart from receiving enough oxygen.
[6] High blood pressure in the pulmonary arteries.
[7] A complication of pulmonary hypertension where the right ventricle of the heart enlarges and pumps less effectively. Cor pulmonale is also known as right-sided heart failure.
[8] A chronic inflammatory lung disease that causes obstructed airflow from the lungs.
[9] Low blood pressure (pressures less than 90/60mmHg are recognised as hypotensive).

2008, and a nephrectomy[10] for a poorly functioning kidney. Mr A was on long-term medication, including atorvastatin,[11] losartan,[12] and propranolol[13].[14]

10. The GP reported that Mr A had been diagnosed with moderate to severe COPD in 2013, after which he would 'typically' see Mr A 2–3 times per year for exacerbations of his COPD. The GP stated that during 2020, Mr A's exacerbations of COPD increased, and therefore he referred Mr A to a private respiratory physician, Dr D.

Appointment with Dr D — Month1

11. Mr A attended an appointment with Dr D on 20 Month1. Dr D noted in the clinic letter that Mr A had known significant cardiac and respiratory disease; his dyspnoea (difficulty breathing) had escalated in the last six months; he was 'unable to walk on the flat without becoming significantly breathless'; and he had a continuing cough. Dr D documented that on examination, Mr A 'managed two flights of stairs with oxygen saturation maintained at 95% on room air'.

12. Dr D documented that Mr A had a raised BNP[15] that suggested the development of heart failure, particularly in the context of known pulmonary hypertension and IHD, which could have been contributing to his breathing difficulties. In addition, Dr D noted that Mr A was on long-term propranolol for intractable migraine and that past trials of alternative medication had been unsuccessful. Dr D discussed with Mr A that the propranolol was likely exacerbating his breathing difficulties, with a view to reducing it slowly '[a]t some point'.

13. Dr D noted that Mr A had both ischaemic heart disease and COPD/asthma overlap. Dr D prescribed roxithromycin[16] for Mr A's cough and requested CT scans of his chest and sinuses, formal lung function and 6-minute walk tests, an echocardiogram (ECHO)[17] and 'perhaps a right heart catheter test', to be performed at North Shore Hospital. Dr D noted in the clinic letter: 'If significant desaturation is demonstrated [Mr A] **may be a candidate** [my emphasis] for portable oxygen.[18]' Dr D also noted that Mr A would be seen again following the results of the tests.[19]

[10] The surgical removal of a kidney.
[11] Medication used to lower cholesterol and prevent heart disease.
[12] Medication used to treat high blood pressure.
[13] A medication used to slow down the heart, making it easier for the heart to pump blood around the body.
[14] Clinical notes show that Mr A's regular doses of losartan and propranolol were prescribed throughout his admission.
[15] B-type natriuretic peptide (BNP) is a protein made by the heart and blood vessels.
[16] An antibiotic used to treat respiratory tract infections.
[17] Ultrasound of the heart.
[18] Oxygen therapy can be provided by either an electronically operated machine (oxygen concentrator) or by a cylinder containing liquid/gas oxygen. Oxygen concentrators filter nitrogen from room air (made up of about 20% oxygen) to deliver a higher concentration of oxygen by nasal canulae. Oxygen concentrators can be stationary (which provide continuous oxygen with higher oxygen output) or portable, which vary in weight, size, oxygen flow (high or low/continuous or 'pulse mode'), oxygen output, and battery life. See: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6876135/.
[19] The complainants told HDC that following this appointment, Mr A did not have any further appointments with Dr D.

Natural ozone concentrator

14. The complainants told HDC that Mrs A purchased a 'natural ozone concentrator[20]', which came with nasal prongs and a pulse oximeter, for Mr A around six months prior to his death, 'as she was desperate to have anything to help [him]'. The complainants stated that '[t]hey followed the instructions that were included with the machine as best they could' and that Mr A used this daily when he was getting short of breath, for around 15 minutes each time.

15. Health NZ Waitematā stated that '[Dr D] was not consulted, nor [Dr D's] advice sought regarding this purchase'.

Presentation to ED — 8 Month6

16. Mr A presented to North Shore Hospital via ambulance at 6.09pm on 8 Month6, following a short period of witnessed altered consciousness, preceded by a sudden onset of severe nausea, clamminess, SOB, severe central chest pain radiating through to between his shoulder blades, and possible haematemesis after reportedly trying to get his new mobility scooter in and out of the car.

17. Clinical notes show that Mr A reported 'a significant decline in functional ability' over the previous two months, with fatigue, SOB ('struggling to walk 10m'), nausea on exertion or eating, and recurrent episodes of central chest pain 'often radiating to between [his] shoulder blades'. However, the complainants stated that prior to admission, Mr A had been able to go about his normal activities of daily living, 'even mowing lawns right up to a couple of days before his admission to hospital'.

18. On admission, Mr A's blood pressure (BP) was (129/80mmHg[21]), he was bradycardic[22] with a heart rate (HR) of 55 beats per minute (bpm), and tachypnoeic[23] with a respiratory rate (RR) of 21 breaths per minute.[24] Mr A's oxygen saturation level (SpO_2) was documented as 94% on 3 litres per minute (L/min) of supplemental oxygen (O_2).[25]

19. Clinical notes show that in ED, Mr A's chest pain and nausea resolved, he reported no back pain, and his breathing returned to normal. An arterial blood gas (ABG)[26] test showed that Mr A was not retaining carbon dioxide (CO_2),[27] with normal levels of CO_2, O_2 and acidity (pH

[20] A small portable oxygen concentrator sold directly to the consumer by the company Natural Ozone.
[21] Normal blood pressure is <120/<80mmHg; elevated blood pressure is 120–129/<80mmHg; and high blood pressure is 130–139/80–89mmHg.
[22] Bradycardia is a slower than normal heart rate (a normal resting heart rate for adults ranges from 60–100bpm).
[23] Rapid, shallow breathing.
[24] The normal respiratory rate for an adult at rest is 12–18 breaths per minute.
[25] A normal resting oxygen saturation level is between 95% and 100%.
[26] An ABG test measures the amount of oxygen and carbon dioxide in the blood.
[27] CO_2 retention (hypercapnia) is abnormally elevated CO_2 levels in the blood (too little CO_2 is removed from the blood by the lungs). People with COPD are more likely to have hypercapnia if they are taking supplemental O_2.

levels) in his blood.[28] An electrocardiogram (ECG) was undertaken, which confirmed sinus bradycardia, as well as a chest X-ray and computed tomography (CT) scan, which found emphysematous[29] changes in his lungs. His blood tests showed an elevated creatinine level (170µmol/L)[30] and troponin level (43ng/L).[31]

20. The clinical impression was noted as:

- Severe chest pain on a background of recurrent episodes, progressive SOB and known IHD;
- Syncopal episode (fainting), likely secondary to severe pain, hypotension and possible hypoxia[32] in the setting of known COPD;
- Acute kidney injury (AKI), possibly due to hypovolaemia;[33]
- Shortness of breath, likely multifactorial; and
- Episode of haematemesis.

O_2 use at home

21. The ED admission summary noted that Mr A used 'home O_2 intermittently', and in a report to the Coroner dated 28 Month8, Dr E, a consultant physician, documented: '[Mr A] reported having supplemental oxygen at home which he was using several times a day when he felt short of breath.'

22. In contrast, the complainants stated that Mr A did not have (prescribed) O_2 at home[34] and he was never formally assessed for the need for short-term or long-term O_2 at home. The complainants told HDC that during Mr A's admission in ED (and on the general medical ward to which he was transferred subsequently), Mrs A 'made it clear to the hospital' that Mr A did not have O_2 at home.

Care provided during hospital admission

9 Month6

23. Mr A was admitted to a general medical ward on the morning of 9 Month6 with a primary diagnosis of unstable angina (chest pain), on a background of IHD.

[28] Mr A's pCO_2 (partial pressure of carbon dioxide in the blood) level was 5.2kPa (normal range is 5.3– 6.7kPa); his PO_2 (partial pressure of oxygen in the blood) level was 5.2kPa; and his pH (acidity of the blood) level was 7.34 (normal range is 7.30–7.40).
[29] Damage to the walls of the lungs.
[30] Creatinine levels are tested to check for abnormalities in kidney (renal) function. A normal result is between 60–105µmol/L.
[31] A protein that can indicate cardiac damage when released. A normal result is between 0–40ng/L.
[32] Low levels of oxygen in body tissues.
[33] A condition in which the liquid portion of the blood (plasma) is too low.
[34] Although Mr A had a portable O_2 concentrator at home, this was never prescribed for him. Portable O_2 concentrators are medical devices that should be used only with a prescription, as the correct flow, duration, and type of oxygen therapy required must be determined for each individual before use.

24. Health NZ told HDC that due to his underlying condition (of COPD), Mr A's 'usual' oxygen saturation was between 88–92%. The ward admission summary documented: '[U]ses Oxygen 3–4 x per day for SOB … accept Spo2 88–92% given known COPD. Prefer closer to 92.'

25. In the morning, Mr A was reviewed by Dr E, who noted that he was '[b]reathless at rest' and that over the past three months he had become lethargic and short of breath with minimal activity. In the report to the Coroner, Dr E documented that Mr A stated that he had seen Dr D, and Dr E requested a copy of Dr D's correspondence 'to get more information on recent developments and investigations'.

26. Dr E's report to the Coroner stated that due to Mr A's extensive cardiac history, and his most recent transthoracic echocardiogram (Month3) showing 'significant deterioration in right ventricular function', a cardiology review was requested.

27. In the afternoon, Mr A was seen by a cardiology registrar, who examined Mr A's chest and documented: '[G]lobally reduced [air entry] and expiratory wheeze throughout.' Mr A's troponin level had increased to 46ng/L (indicating a cardiac condition), and the registrar noted that he would discuss the need for an angiogram[35] with the senior medical officer (SMO). Isosorbide mononitrate (ISMN)[36] was prescribed for Mr A's IHD and was started the following day.

10–11 Month6

28. Clinical notes show that Dr D emailed the clinic letter (dated 20 Month1) to a general medicine house officer (GMHO) in the morning of 10 Month6. The GMHO summarised the contents in the clinical notes, in particular Mr A's IHD, COPD/asthma overlap, chronic cough, and heart failure in light of his increased BNP. A plan to wean Mr A off propranolol was also noted, 'as it [was] likely [exacerbating his] SOB'.

29. However, the GMHO did not document the comment in Dr D's clinic letter that Mr A might be a candidate for portable oxygen if significant desaturation was demonstrated on formal lung function and 6-minute walk tests, and that Dr D would see him again following the results of tests. These tests had not been conducted at the time of Mr A's admission in Month6.

30. On 10 Month6 Mr A was reviewed by a general medicine registrar (GMR), who documented, 'Respiratory clinic letter noted,' and that Mr A was 'on intermittent home oxygen'. It was also noted that Mr A's AKI was improving, with his creatinine level having dropped to 141µmol/L.

31. On the evening of 10 Month6, Mr A was noted to be hypothermic[37] and was reviewed by a GMHO, who found no change in chest findings on examination and no drop in SpO_2 levels.

[35] A diagnostic procedure to determine whether coronary arteries are blocked or narrowed.
[36] Used to prevent angina caused by coronary artery disease.
[37] A body temperature below 35°C.

Clinical notes show that Mr A told the GMHO that he 'normally use[d] O_2 at home — 15 min bursts [three times a day], known to have SpO_2 86–90% according to him'. The GMHO noted the admitting target saturation levels of 88–92% O_2 (as per paragraph 24) and documented: '[S]till aiming for SpO_2 92–96%.' The GMHO requested a chest X-ray and blood test, as it was thought that the hypothermia could be secondary to an infection.

32. The chest X-ray taken that evening showed possible pulmonary oedema,[38] and intravenous (IV) antibiotics (cefuroxime) were started. However, the blood results received the following day (11 Month6) were 'unconvincing for [an] infection', and the IV antibiotics were ceased, with oral antibiotics (roxithromycin) re-commenced.

33. In the afternoon of 11 Month6, Mr A was reviewed by the cardiology registrar, who determined that due to his comorbidities, an angiogram would not be in his best interest. Furthermore, Dr E stated in the report to the Coroner that 'no further investigation or interventional measures for ischaemic heart disease could be planned'. Instead, Mr A was started on 'medical management only' for unstable angina.

34. Health NZ stated that Dr E recalled making it clear to Mr A that 'his medical issues were severe and not reversible and that the aim of management was to minimise his symptoms and optimise his function'.

13–15 Month6

35. On the morning of 13 Month6, Mr A's BP and HR were low, and he was reviewed by a GMHO, alongside a nurse from the critical care outreach team (CCOT). The GMHO noted that Mr A's BP had improved, but that he was lightheaded and nauseous and had had poor oral intake and brief left-sided chest pain earlier that morning. In addition, Mr A was very short of breath.

36. Mr A was administered O_2 via high-flow nasal prongs (HFNP),[39] and the GMHO documented: '[A]im sats >94% (not retainer as previous ABGs).' In contrast, the CCOT nurse documented: '[M]aintain target saturations > 92% as per team notes.' IV antibiotics were restarted, the ISMN was withheld 'due to low BP', and a repeat chest X-ray and blood tests were ordered.

37. The chest X-ray showed 'severe widespread emphysema, and density within the right lower zone' and the development of a small right-sided pleural effusion.[40] Mr A's blood test showed worsening of his AKI (creatinine 217µmol/L) and increased troponin levels. The clinical impression was hospital-acquired pneumonia,[41] with secondary type 2 myocardial infarction[42] and AKI, 'likely secondary to significant dehydration'. As a result, Mr A's regular

[38] Abnormal fluid build-up in the lungs.
[39] Oxygen is delivered at a faster flow rate than with regular nasal prongs, resulting in a greater delivery of oxygen into the lungs and less inhalation of room air.
[40] A build-up of fluid between the tissues that line the lungs and chest.
[41] Infection in the lungs.
[42] A heart attack caused by either increased oxygen demand or decreased supply.

losartan medication was withheld ('due to AKI'),[43] with diuretics and anticoagulants[44] prescribed.

38. Mr A was reviewed by a GMHO and a CCOT nurse at around 2am on 14 Month6, as he was hypotensive. The CCOT documented that O_2 via HFNP should continue, aiming for saturations of 92–96% O_2. The GMHO re-prescribed ISMN 'as tolerated' for chest pain. However, in the afternoon, clinical notes by the GMR show that Mr A was not tolerating the ISMN or HFNP and he was given regular nasal prongs instead.

39. In the morning of 15 Month6, Mr A's HR and BP were stable, and his AKI had improved slightly (creatinine level 191µmol/L). Mr A reported feeling constipated and was reviewed by Dr E, who noted that this was an 'adverse reaction' to the ISMN and directed that this be withheld until Mr A's bowels had cleared, after which a lower dose would be trialled.

16 Month6

40. At around 4am, a registered nurse found Mr A in the toilet and noted that he was 'very short of breath'. He was started back on HFNP, with a plan to 'wean O_2'; however, clinical notes in the afternoon show that Mr A was not tolerating this and became desaturated, so he was put back on HFNP. His SpO_2 level at this time was 92% on 2L/min O_2 and it was documented to '[a]im [for] sats [of] 92–96%, [and to] wean O_2'.

41. In the afternoon, a GMHO and a CCOT nurse were called to review Mr A as his SpO_2 level had decreased to 88% on 2L/min, and he was hypotensive and light-headed. The GMHO noted that Mr A appeared short of breath but was 'saturating 88–90' on 3L/min of O_2 on HFNP.[45] The clinical impression was that his hypotension was likely causing his symptoms, including his ongoing O_2 desaturations. IV fluids were charted, and the target saturations were set at 92–96% O_2, with the GMHO documenting '**not a CO_2 retainer**'. In contrast, the CCOT nurse who reviewed Mr A after the GMHO documented: 'Aim sats 88+ as at high risk of CO_2 retention'.

17 Month6

42. At 9.33am Mr A was seen by Dr E, who noted that he looked 'much improved' and that his episodes of hypotension and desaturations from the previous day were improving. Dr E's report to the Coroner stated that Mr A's vital signs had improved, and a chest examination revealed better air entry with no wheeze. Mr A had received a reduced dose of ISMN that morning, and Dr E documented that this would be ceased 'due to low BPs'. In addition, IV antibiotics were ceased, with oral antibiotics (cefaclor and roxithromycin) continued.

43. Dr E's report to the Coroner also stated that Mr A 'was keen to go home before the weekend'. Dr E documented in the clinical notes: 'If stable, [discharge] over weekend, otherwise aim [discharge] next week.' Health NZ told HDC that Mr A was 'distressed and ba[u]lked when [Dr E] told him it would be best if he stayed a few more days until after the

[43] Mr A's discharge summary documented the continuation of losartan after discharge.
[44] Clexane.
[45] Clinical notes show that Mr A remained on HFNP from this time until the evening of 17 Month6.

weekend to be more certain of his stability on his current medication regime'. Health NZ stated that Mr A expressed wanting to go home … as it 'may be his last', and, given this, Dr E 'reached a compromise with [Mr A] that if his vital signs were stable on 18 [Month6] he could be discharged'.

44. At 4am Dr E noted Mr A's SpO_2 level of 93% on 3L/min O_2 and documented: 'Wean down O_2.' Mr A was to be taken off HFNP (and given regular nasal prongs), with target saturations of '92–96%' O_2. However, Dr E's report to the Coroner stated that '[a]s [Mr A] stated he had supplemental oxygen at home, the target was an oxygen saturation of >90% on no more than 2L/min of supplemental oxygen'.

45. Health NZ stated that the decision to alter Mr A's target saturations to 92–96% O_2 was in view of his improving oxygenation and review of his recent and historical ABGs, which showed that Mr A was not a CO_2 retainer. Health NZ told HDC:

> 'All patients who are admitted with a diagnosis of COPD, or who can reasonably be assumed to have COPD (heavy smoking history and exercise limitation), and who are hypoxic, should have a prescription for oxygen to target the lower range 88–92% unless or until it is established that they are not CO_2 retainers. At this point the prescription can be changed to the usual target of 92–96%.'

46. The complainants stated that on the afternoon of 17 Month6, Mr A was still on HFNP and RN C told the family that although she was meant to be weaning his O_2, he was not tolerating it. The complainants told HDC that when RN C discussed Mr A's oxygen requirements with them, in the context that he would possibly need this at home, 'it was explained to her that in no way we were set up for this, [and] she indicated this would be addressed should it need to occur post discharge'.

47. RN C confirmed to HDC that when the family came to visit, she informed them of the 'challenge to wean [Mr A] off HFNP'. She told HDC that on HFNP, Mr A 'saturated 92–94% with fluctuations' and when she attempted to decrease O_2 by 1 Litre, Mr A 'desaturated to higher 80s %'. She stated that despite positioning Mr A in 'Fowler's (sitting) positions', deep breathing and 'a "pursed lip breathing" technique', the maximum oxygenation level reached was 92% and therefore she considered 'weaning off unsafe at that moment and returned oxygen level supply to initial values'. RN C documented: '[U]nable to wean [Mr A] off HFNP reaching target aim 92–96%. Saturation up to 92% on best effort of deep breathing and sitting position.'

48. RN C told HDC that both Mr A and his family mentioned that he used O_2 'intermittently' at home, with the family stating that the target saturations were 88–92% on 2L/min O_2. RN C documented: 'Spoke to family regarding oxygen aims: as per family [patient] on 2L O_2 supply at home with aim sats 88–92%.'

49. RN C stated that she was 'surprised with the differences in oxygen aims, as [she] did not see any information in his notes about [Mr A] having CO_2-retaining form of COPD' and due to the differences in target saturations, she spoke to a GMHO, who reviewed Mr A's blood

results[46] and verbally confirmed that Mr A's new target saturations would be 88–92% O_2. RN C told HDC that she informed the family of 'the new inpatient oxygen level aim' and documented:

> '[W]riter spoke to HO to clarify the saturation aim and difficulty weaning off [patient] to [nasal prongs], as [patient's] usual saturation is between 88–92%. HO verbally confirmed new aim 88–92% … Aim sats 88–92%, wean O_2 HFNP.'

50. Clinical notes from 4.40pm show that the GMHO discussed Mr A's target saturations with the GMR, and it was documented: '[T]arget sats to be 90 and over.' Nursing notes from 9.30pm that evening show that Mr A was taken off HFNP and put onto regular nasal prongs, with target saturations of '>90% 0_2'.

Discharge — 18 Month6

51. Dr E's report to the Coroner states that on 18 Month6, Mr A was 'clinical[ly] stable' and his blood tests showed further improvement in his AKI (creatinine 188µmol/L).[47]

52. At 12.21pm, Mr A was seen by a GMHO, and it was noted that he was 'mobilising well. No complaints [overnight]. Keen to go home.' The GMHO noted that Mr A's vital signs were all within normal range, and his SpO_2 levels were 92% on 2L/min 0_2 (without nasal prongs).[48] The GMHO documented that Mr A was 'safe for discharge' with '[r]eturn advice' given. Mr A was discharged at 2.13pm on 18 Month6.

53. The complainants dispute that Mr A was mobilising well and stated that on the day of his discharge, Mr A's 'level of activity was significantly below normal', and he needed a wheelchair to get to the car. Health NZ stated that Mr A was taken to the car in a wheelchair 'for his comfort as although he was mobilising well in the ward his overall exercise tolerance was limited'.

54. Health NZ said that the decision to discharge Mr A 'was based on clinical improvement and stability', balanced with his desire to be discharged home. Health NZ stated:

> 'Because [Mr A] was alert and mobilising well, he reported being comfortable and had achieved his pre hospital oxygenation (92%) on minimal (2L/min) oxygen the team supported his desire to be discharged.'

55. Furthermore, Health NZ stated that in light of Mr A's COPD, 'the issue [was] what baseline ("as good as it gets") blood oxygen saturation levels were realistic' and whether these levels could be achieved at home with O_2. Health NZ further stated that it was Dr E's opinion that >90% blood oxygen saturation on 2L/min 'was realistic' and 'this was one of the crucial parameters which was met that led to clearing [Mr A] for discharge'.

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[46] Clinical notes by the GMHO note that Mr A's ABGs were checked (including previous tests from Month4 and 2017) and it was confirmed that Mr A was 'not a CO_2 retainer'.
[47] As at 8.06am on 18 Month6.
[48] Clinical notes show that Mr A was still receiving O_2 via nasal prongs at 7.47am on 18 Month6.

56. Mr A's discharge summary documented that an outpatient consultation with the Health NZ Waitematā respiratory service had been booked for 11 Month7, together with lung function and 6-minute walk tests. The summary noted: 'An appointment is due with Respiratory — Dr D. This appointment has not yet been booked.' It was documented that no general medicine follow-up was needed and that no specific recommendations around GP review had been made, and no discharge advice was documented regarding O_2 use at home. In addition, the discharge summary noted that Mr A was to continue with the oral antibiotics (cefaclor) for a further two days, and the roxithromycin until his appointment with his respiratory physician in Month7.

57. Health NZ told HDC that the lung function and 6-minute walk tests had already been booked on referral from Dr D, and that appointments to see private specialists are to be arranged by the patient. Health NZ also told HDC that timely GP review post-discharge should have been made, and the 'expected [discharge] advice' regarding Mr A's O_2 use 'was dependent on what he was already on, and what he had been advised to do by [Dr D]. Unfortunately, in hindsight this ha[d] not been clearly established.'

Readmission to hospital — 19 Month6

58. Mr A was readmitted to North Shore Hospital at 8.49am on 19 Month6 via ambulance for SOB. Clinical notes show that Mr A had 'felt okay' when discharged the previous day, but he had developed increasing SOB that evening, which worsened overnight. It was noted that on the ambulance's arrival, Mr A was bradycardic, hypotensive, and hypoxic.

59. Mr A was reviewed by an intensive care unit (ICU) registrar, who documented: 'Not for ICU … Would not benefit from intubation and suspect that even [non-invasive ventilation] would be of little benefit … Advise that he s[h]ould not be for [cardio-pulmonary resuscitation[49] (CPR)].'[50]

60. An ECG showed evidence of right heart strain and blood tests showed worsening AKI. Mr A was started on IV antibiotics and reviewed by a GMR, who noted that he was 'hemodynamically stable'; however, during the afternoon, Mr A again became hypotensive and bradycardic, and IV fluids were given. At 4.38pm, the GMR documented that Mr A had 'obvious' right heart failure with severe pulmonary hypotension, which made fluid balance 'exceedingly difficult'. The GMR noted: '[In the presence of his AKI] IV [fluids] is likely a double edged sword as it worsens his [pulmonary hypotension].'

61. The GMR discussed Mr A's case with Dr E, who agreed that 'ward measures have been carried out and currently at ceiling of care[51] given ICU declined … further deterioration would warrant supportive cares'. Clinical notes show that Mr A's resuscitation status was

[49] CPR is an emergency procedure used to maintain circulation of the blood when the heart has stopped pumping on its own and is aimed at preventing death or brain death due to lack of oxygen.
[50] Clinical notes show that Mr A was for full resuscitation at this stage, and during his previous admissions.
[51] A 'ceiling of care' is the predetermined highest level of intervention deemed appropriate by a medical team.

changed to 'Not For CPR'/'Not for resuscitation' (NFR) on a 'Medically Inappropriate CPR' basis.

62. It is documented that in the evening, the ICU registrar met with the complainants regarding Mr A's NFR status and declined ICU care and explained that due to his poor respiratory function, COPD, and pulmonary hypertension, if he were to be intubated and ventilated, 'he would never be able to come off a breathing machine, resulting in distress for him and the family'. Clinical notes show that the complainants were understanding of Mr A's situation and that he would 'remain with a ward-level ceiling of care'. However, Health NZ told HDC that it is not recorded whether the 'concept' of CPR was 'specifically discussed or whether the team confirmed that the family fully understood what NFR … specifically meant'.

63. Clinical notes show that Mr A suffered a cardiac arrest at approximately 6.30pm, after becoming increasing cyanotic[52] and short of breath, but that Ms B 'voice[d] objection to the NFR status earlier determined' and therefore, a 777 (resuscitation) call was made. Health NZ told HDC that a 777 call was 'likely' made as Mr A had not yet been transferred to a medical ward, the timing of his deterioration was sudden, and Ms B 'was distressed at the rapid turn of events and wanted CPR to commence'.

64. CPR was performed for approximately five minutes; however, a rhythm check showed pulseless electrical activity[53] and 1mg of IV adrenaline was given. Another round of CPR commenced, but Mr A 'remained in asystole[54]'. It was decided that 'prolonged CPR was not in [Mr A's] interest' and CPR was stopped.

65. Mr A passed away at 6.40pm and the established cause of death was cor pulmonale, secondary to severe COPD.

Further information

The complainants

66. The complainants raised their concerns directly with Health NZ Waitematā via letters; however, their concerns remained unresolved. The information provided in these letters has been included in this report where relevant and appropriate.

67. The complainants are concerned that Mr A did not receive a full respiratory assessment and was not fully weaned off oxygen before being discharged, as he did not have prescribed O_2 at home. The complainants told HDC that they made it 'very clear' to the hospital that Mr A did not have (prescribed) O_2 at home, and therefore his 'baseline' was 'NOT on oxygen at home'.

68. The complainants feel that Health NZ 'negligently discharged [Mr A] into a situation which ultimately led to his death' and believe that more care should have been taken in his discharge planning. The complainants told HDC that as Mr A was on O_2 for the duration of

[52] A blueish-purple skin colour as a result of decreased oxygen in the blood.
[53] The heart stops because the electrical activity is too weak to make the heart beat.
[54] The heart's electrical system fails entirely, which causes the heart to stop pumping.

his admission and 'was not able to maintain his oxygen saturations to a level that would sustain life', this led to his cardiac arrest, and their understanding is that Mr A should have been off O_2 for 'at least 24 hours' prior to discharge, to ensure that he was able to tolerate 'being on room air'.

69. Furthermore, the complainants stated that they were not made aware of whether Mr A's 'disease process was end stage or if there was reversibility'.

Health NZ

70. Health NZ extended its sincere condolences to the family 'for the loss of a clearly treasured family member'. Health NZ told HDC that on speaking with its staff, 'it was obvious that [Mr A] was popular, and they were saddened to hear of his passing'.

71. Health NZ stated that in hindsight, there was a breakdown in communication/ understanding between the staff, Mr A, and his family, which resulted in Mr A receiving care at hospital discharge that did not meet Health NZ's standards and for which Health NZ sincerely apologised to Mr A's family. In addition, Health NZ apologised for not ensuring that the family understood the decisions being made, together with Mr A, during the discharge process.

72. Health NZ told HDC that the changes to Mr A's medications were considered to be appropriate 'based on the available clinical information and observations at the time' but acknowledged that there was an opportunity to review his medications in the pre-discharge period, in light of his hypotension, and stated that it would have been appropriate to 'more proactively' manage the combination of his propranolol and losartan medications prior to discharge.

73. Health NZ told HDC: 'Unfortunately, there is no record of a formal assessment of [Mr A's] need for oxygen prior to discharge, including a review of his oxygen prescription and ability to manage at home.'

74. Health NZ stated that Mr A's target saturations during his inpatient stay were based on the clinical assessment at the time, although 'not perfectly executed as use of the hospital's electronic prescribing of oxygen was not utilized, which it should have been'.

75. Health NZ stated that Mr A was not receiving Long Term Oxygen Therapy (LTOT)[55] prior to his admission, and he 'would not [have met] national criteria for LTOT', given the information in Dr D's clinic letter, which noted a resting room air saturation of 95% (as per paragraph 11). Health NZ told HDC that evidence has shown harmful effects (particularly to the cardio-respiratory system) when LTOT is given to those who do not require it, and stated

[55] Health NZ stated that 'LTOT is the use of oxygen for at least 15 hours a day to mitigate severe continuing long-term hypoxia and in some cases to improve prognosis if severe pulmonary hypertension is present (cor pulmonale). The survival benefit is modest and research shows that survival curves only start to separate after a period of approximately three years of continuous use of LTOT.'

that in Mr A's case, 'domiciliary oxygen is likely to have been at best of no value, but realistically harmful to the patient at that time'.

76. Furthermore, Health NZ told HDC:

> 'It is not appropriate to assess a patient for suitability for LTOT during, and in the 6 weeks following, a period of acute reversible decompensation.[56] [Mr A] was hospitalized with heart failure on a background of [COPD] and developed a hospital-acquired pneumonia. An evaluation for LTOT was necessarily deferred, as [national] guidelines require.'

77. However, Health NZ stated that Mr A should have been assessed for Short Term Oxygen Therapy (STOT),[57] to be provided at discharge for six weeks, which is 'the standard of care for a patient who cannot be successfully weaned completely from oxygen but who is otherwise suitable for discharge'. Health NZ told HDC that in that case, an inpatient referral to the respiratory clinical nurse specialist (CNS) for consideration of STOT would occur and, if there was doubt as to whether the patient met the criteria for STOT, then consultant respiratory input would be sought.

78. Health NZ told HDC that a respiratory consultation was not obtained because the 'predominant reason for Mr A's admission(s) was heart failure' and as Mr A had 'recently' been seen by Dr D, it was 'incorrectly assumed' that O_2 had been prescribed by Dr D, that Mr A and his wife were familiar with how to use it, and that therefore he had met the requirements for continuing STOT at the time of discharge.

79. Health NZ stated that the medical team, including Dr E, were unaware that Mr A had an 'ozone machine' and 'were working on the mistaken belief that Mr A was using supplemental oxygen (consistent with STOT capability) at home prior to admission', with 'private oversight for its use'. Health NZ told HDC that '[t]his was the context for the team's decision making through the period of the admission and on discharge' and, had they known Mr A had an 'ozone machine', 'this would have prompted an immediate investigation into what the machine was and how he was using it', and he would have been referred for inpatient specialist respiratory input.

80. Furthermore, Health NZ told HDC that as Mr A was 'relatively recently' under the care of Dr D, '[f]ollow-up for [Mr A's] optimization and education of respiratory care was believed to be occurring in the private sector, following his scheduled outpatient tests'.

81. Health NZ said that on reflection, it should have fully investigated Mr A's oxygen provision prior to his discharge. Health NZ stated:

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[56] Acute decompensation heart failure is a sudden worsening of the signs and symptoms of heart failure.

[57] Health NZ stated that 'STOT is a service provided specifically for COPD patients whereby an oxygen concentrator is provided in the home. STOT in itself does not confer any survival advantage and has no evidence as such, but enrolls the patient in a process of assessment later once they have recovered to see if they would benefit from … LTOT.'

> 'In hindsight the team should have clarified with [Mr A] and his family exactly what he meant when he confirmed he was on home oxygen therapy, who had prescribed it, and what the arrangements were in place for oversight of its continuing use. The team should have sought more information and clarity about his treatment plan from [Dr D] beyond the correspondence emailed through on 10 [Month6] to the team House Officer. This would have undoubtedly led to a formal assessment of oxygen needs and STOT being formally initiated at discharge.'

82. Health NZ told HDC that the survival rate of patients with cor pulmonale and COPD 'is estimated at only 30% at 5 years' and Mr A was 'close to three years' post-diagnosis when he was admitted on 8 Month6. Health NZ stated that Mr A's condition was therefore viewed as 'pre-terminal with no meaningful therapies that would change that situation', so treating the acute decompensation and returning him home with symptom-based care 'was a reasonable approach in that context'. However, Health NZ noted:

> '[I]t is clear from the family's comments and distress when [Mr A] was readmitted *in extremis* on 19 [Month6] that they did not share the same understanding of [Mr A's] bleak longer-term prognosis or treatment pathway. There was a missed opportunity to bring all parties to a shared understanding.'

Responses to provisional opinion

The complainants

83. The complainants were given an opportunity to respond to the information gathered during this investigation but had nothing further to add.

Health NZ

84. Health NZ was given the opportunity to respond to the provisional opinion. Health NZ accepted the 'breach recommendation' and had nothing further to add.

Relevant policies and standards

85. Health NZ Waitematā's 'Resuscitation Status Discussion with Patients/Families' policy (2018) provides the following:

> '3. Medically Inappropriate CPR
>
> Patients do not have the right to treatment when the likelihood of survival is so small that it would be regarded as medically inappropriate in the context of the patient's condition.
>
> Where cardiac arrest response is deemed to be an **inappropriate** procedure by the medical staff, it is senior medical staff responsibility to determine the information provided to each patient, (and/or family/whānau if the patient has diminished incompetence) and other members of the clinical team.'

Opinion: Health NZ Waitematā — breach

Introduction

86. This opinion discusses the care provided to Mr A by Health NZ Waitematā in Month6. In particular, it considers the adequacy of discharge planning and appropriateness of discharge.

87. It is clear from the information gathered that Mr A was a much-loved husband and father, who had a very unfortunate and extensive medical history. It is also evident that the complainants were very dedicated to Mr A, and I acknowledge the distressing impact his passing has had on them.

88. I have undertaken a thorough assessment of the information gathered in light of the complainants' concerns. In my assessment of this complaint, I have considered information from the complainants, Health NZ, and RN C, as well as from the Office of the Coroner.

89. At the outset, it is necessary to acknowledge that there were clear misunderstandings about Mr A's O_2 use at home, which appear to have influenced the care provided. To help determine whether the care provided to Mr A by Health NZ in Month6 was of an appropriate standard, I sought independent clinical advice from an internal medicine specialist, Dr Richard Shepherd.

Discharge planning

Assessment of O_2 prior to discharge

90. Health NZ stated that a formal assessment of Mr A's need for O_2 prior to discharge, including review of his O_2 prescription and the ability to manage at home, was not undertaken.

91. Dr Shepherd advised that overall, in light of the 'fragmented care between private and public, the stated misunderstandings around communication at the time decisions were made and the uncertainty around documentation available', failing to formally assess Mr A's need for home O_2, including review of his O_2 prescriptions and ability to manage at home, was a moderate departure from the accepted standard of care.

<u>Assessment of O_2 availability at home, including ability to manage</u>

92. It is recorded in the clinical notes that Mr A reported using O_2 at home and having seen a private respiratory specialist, Dr D, whose clinic letter was obtained by Health NZ on 10 Month6.

93. The complainants told HDC that although they purchased a natural ozone concentrator online for Mr A, which he used daily when he was getting short of breath, they repeatedly told staff that he did not have O_2 at home.

94. Health NZ told HDC that staff were unaware that Mr A was using an 'ozone machine', but rather 'incorrectly assumed' that because Mr A had 'recently' been seen privately by a respiratory specialist, Dr D, O_2 had been prescribed by Dr D and was consistent with STOT capability. Health NZ stated that '[t]his was the context for the team's decision making

through the period of the admission and on discharge'. Health NZ accepted that it should have investigated Mr A's oxygen provision fully prior to his discharge.

95. Dr Shepherd advised that the issues around Mr A's O_2 availability at home are 'materially very important and woven into any assessment around his "ability to manage" — and ultimately how stable he might be expected to be at home'.

96. Dr Shepherd advised that given Mr A's circumstances and diagnoses (in particular, his severe COPD, cor pulmonale and severe pulmonary hypertension), home O_2 use was indicated on his discharge 'for a prognostic survival benefit [and] symptomatic benefit'. He said that this was particularly so, given that Mr A was rarely off oxygen during his 10-day hospital admission and potentially would have been expected to decompensate if O_2 was not available at home.

97. Dr Shepherd advised that there is no documentation that Mr A's O_2 availability at home was assessed, 'with "*assumption*" around his oxygen prescription acknowledged by [Health NZ] as the care that was provided'.

98. Dr Shepherd said that although Mr A was documented as having O_2 at home, there is very limited documentation of an adequate history around his oxygen use — in particular, O_2 prescription recommendations (target saturations), the oxygen source (ie, concentrator, bottled oxygen for ambulatory use), how the oxygen was obtained/its delivery method, or specific discharge advice around its use. Dr Shepherd advised that this was a 'significantly overlooked aspect of [Mr A's] care' and, given the 'potential prognostic benefit and therefore significant influence oxygen may have had on his appropriate treatment', the lack of assessment was a departure from the expected standard of care.

99. I accept Dr Shepherd's advice and am critical that Health NZ failed to assess Mr A's O_2 availability and use at home adequately (and therefore his ability to manage at home), especially when weighing the potential prognostic benefit that this would have had, against the potential to decompensate if home O_2 was not available (given that Mr A was rarely off O_2 during his admission).

100. I acknowledge Health NZ's admission that it should have investigated Mr A's O_2 provision fully prior to discharge and, in my view, there were several points at which critical thinking about Mr A's home O_2 use would have been appropriate — in particular, when there was confusion about Mr A's reported O_2 saturation targets at home (discussed further below); that Dr D (who was presumed to have prescribed Mr A home O_2) had documented in the clinic letter that he 'may be a candidate for portable oxygen' based on the results of tests that had yet to occur, and Dr D had not documented that O_2 had in fact been prescribed; and when family raised concerns with staff about O_2 use at home. I am therefore critical that at the time, further investigations were not undertaken, but rather *incorrect assumptions* were relied on as the standard of care.

Formal assessment of home O_2 and inpatient respiratory input

101. Mr A did not receive inpatient respiratory input or a formal assessment for STOT or LTOT during his admission.

102. Health NZ stated that a respiratory consultation was not obtained, as Mr A's primary reason for admission was heart failure, and, due to 'mistaken belief[s]', an assessment for STOT was not obtained as it was thought that Mr A had STOT at home and follow-up for his respiratory care was occurring in the private sector. Health NZ stated that had it been known that Mr A was not on prescribed O_2 at home (but rather that he was using a self-bought oxygen concentrator), he would have been referred to the respiratory CNS, as in that instance, Mr A should have been assessed for STOT.

103. In addition, Health NZ told HDC that as Mr A was hospitalised with heart failure on a background of COPD, and he developed hospital-acquired pneumonia, 'an evaluation for LTOT was necessarily deferred', as it is not appropriate to assess a patient for LTOT during, and in the six weeks following, a period of acute reversible decompensation.

104. Dr Shepherd said that although inpatient involvement of the respiratory service is 'perhaps a matter of individual clinician judgement', the presence of several factors[58] may have led many clinicians to seek specialist respiratory input, and 'not just for [Mr A's] oxygen use'. Dr Shepherd advised that given that initially Mr A was for full treatment and resuscitation, rather than palliative care,[59] seeking an additional respiratory opinion 'had little to lose and much to potentially add'.

105. Dr Shepherd agreed with Health NZ that Mr A should have been assessed for STOT, but 'struggle[d] to rationalise' the justification for deferring an assessment of O_2. Dr Shepherd stated:

> 'The available clinical notes at the time decisions were made in my view do not support any sense that oxygen evaluations were "*necessarily deferred in [Mr A's] case*". In my view they were simply not adequately reviewed or investigated and as a result the acknowledged inadequate treatment resulted.'

106. Dr Shepherd advised that '[t]he basis for not providing adequate care' could be 'inferred' from the belief that follow-up of Mr A's care was believed to be occurring in the private sector, which 'perhaps underlies the recurrent absence of attention to the detail in this case and the accepting of the most superficial of "beliefs" without investigating further'.

107. In addition, Dr Shepherd noted that Dr D's clinic letter raised a significant number of specialist respiratory issues with numerous investigations suggested. He advised that there was no consideration of these or further evaluation of the correct status of Mr A's O_2 use.

[58] Dr Shepherd stated that such factors may have included Mr A's severe pulmonary hypertension; COPD; prescription of propranolol in the context of 'an asthma component', which he advised can represent a contraindication to its use (as noted in Dr D's clinic letter); the ceased ISMN due to hypotension, which he advised suggested significant right heart impairment; and a long, challenging, medically fragile admission.
[59] Palliative care focuses on providing relief from symptoms and stress when facing a life-limiting condition.

Dr Shepherd said that while the suggested investigations may not have been indicated when Mr A was acutely medically unwell, these were 'important aspects of [Mr A's] care, prognosis and management' and 'would have materially influenced the care he received'.

108. Based on the statements of Health NZ and the advice of Dr Shepherd, I accept that Mr A should have been discharged with home O_2, and that an assessment for home O_2 ought to have occurred prior to his discharge. The reason for the decision not to seek a formal assessment was the mistaken belief that Mr A was already on home O_2.

109. However, my concern is that if any of the multiple clinicians involved in Mr A's care had tested their belief (listened to his family) and investigated Mr A's O_2 use at home further, the mistake could have been corrected. I accept Dr Shepherd's advice that Health NZ should not have accepted 'beliefs', and I remain critical that further investigations did not occur.

Review of O_2 prescriptions (target saturations)

110. It is noted throughout the clinical notes that Mr A reported being on intermittent O_2 at home, using O_2 '3–4 x per day for SOB', and that he reported his usual target saturations as 88–92%.

111. When Mr A was admitted to the general medicine ward on 9 Month6, his target saturations were 88–92%, with a preference for 'closer to 92', given his underlying COPD. Health NZ stated that patients with COPD who are hypoxic and not CO_2 retainers should have target saturations of 88–92%; Mr A's ABGs showed that he was not a CO_2 retainer.

112. During Mr A's inpatient stay, target saturations were changed on multiple occasions, with clinicians on the same day documenting different target saturations (as per paragraphs 36, 41 and 49–50). In addition, Mr A fluctuated between the use of regular nasal prongs and HFNP, and in the days prior to his discharge, staff were struggling to wean Mr A off HFNP, with desaturations noted. Health NZ stated that Mr A's target saturations were based on clinical assessment at the time, although 'not perfectly executed'.

113. Dr Shepherd agreed that the prescribing of oxygen did not meet the accepted standard. He said that there appeared to be 'significant confusion' around Mr A's O_2 use at home, his target saturations, and his family's understanding and knowledge about this. Dr Shepherd advised that Mr A's target saturations were changed without 'clear consultant-level direction of this aspect of his care'.

114. Dr Shepherd stated that Mr A appeared to be using an oxygen concentrator at home, a small portable O_2 concentrator machine that can supply short- or long-term oxygen, although he noted that this was purchased without specific medical advice around its use or indication. In addition, Dr Shepherd advised that although Mr A's clinical notes document that he was using oxygen '3–4x per day for SOB' at home, this was not in accordance with standard guidelines for his circumstances, and it was not documented whether 'that incorrect use' was addressed or rectified prior to his discharge.

115. Dr Shepherd noted that an assessment for any significant desaturation on exercise or activity was not performed, and he advised that the recurrent difficulties in weaning Mr A off HFNP should have prompted a more detailed review of his oxygen prescription, and, if this occurred, it was not documented or provided as specific instructions on his discharge.

116. I acknowledge Health NZ's admission that the prescribing of Mr A's target saturations was 'not perfectly executed', and I accept Dr Shepherd's advice. While clinicians had documented that Mr A was not a CO_2 retainer based on his blood gas results, there appeared to be confusion regarding his target saturations. I am therefore critical that Mr A's O_2 prescriptions were not reviewed with consultant-level direction, given the evident confusion surrounding target saturations and the recurrent difficulties in weaning Mr A off HFNP.

117. Furthermore, while I acknowledge that Mr A had a self-purchased O_2 concentrator at home and that Health NZ was not aware of this, I accept Dr Shepherd's advice that *how* he was using the O_2 concentrator was incorrect for his circumstances, and I am critical that regardless of the source of his O_2, this was not addressed or clarified with Mr A prior to his discharge. In my view, this deficiency in care fell outside of communication issues alone, although again I note that had there been adequate investigations into Mr A's oxygen use at home, including his prescription and provider, this would have been relevant to any change of prescription on discharge home.

Conclusion

118. In summary, I find that Health NZ did not assess Mr A's need for O_2 adequately prior to his discharge, for the following reasons:

a) Health NZ did not investigate Mr A's O_2 availability at home, which resulted in a formal assessment for home O_2 not being undertaken; and

b) Health NZ did not review Mr A's O_2 prescriptions, given the confusion surrounding target saturations, the difficulties in weaning Mr A off HFNP, and the incorrect use of Mr A's home O_2.

Assessment of clinical stability prior to discharge

119. Mr A had a significant medical history and multiple competing comorbidities, which included recent hospital-acquired pneumonia, exacerbation of COPD, a type 2 myocardial infarction, IHD, exacerbation of heart failure/cor pulmonale, severe pulmonary hypertension, and chronic renal impairment with a recent AKI. He was on multiple medications to balance these conditions. In addition, on multiple occasions during his admission he was noted to be bradycardic, hypotensive, and hypoxic.

120. Dr Shepherd advised that in Mr A's situation, the presence of severe competing comorbidities created a 'prognostically, inherently unstable, clinical scenario', and therefore '[a]nticipating significant "clinical stability" in such circumstances would be a very exact science and subject to much "benefit of hindsight" criticism if a discharge "failed"'.

121. Dr Shepherd advised that on the one hand, there was evidence of physiological instability over the 2–3 days prior to discharge, together with a number of changing circumstances — in particular, worsening renal function after earlier improvement; IV fluids for low BP the day before discharge; ongoing CCOT consultation; ceasing the ISMN medication the day of discharge (due to low BP); and weaning off HFNP to standard nasal prongs the evening before discharge, with limited time to assess for stability. Dr Shepherd advised that '[u]nder such circumstances, clinical stability could not be said to have been present'.

122. However, Dr Shepherd advised that '[w]eighing on the other side of that equation', medical assessment on the day of discharge documented stability of Mr A's observations, including HR, BP, and SpO_2 levels, that he was mobilising well, with no complaints or concerns raised overnight, and no respiratory distress noted. In addition, Dr Shepherd advised that there was evidence of 'a "weaning" of care requirements', such as the move from IV to oral antibiotics and attempted weaning of HFNP, and discharge goals (as outlined in paragraph 43). Furthermore, Mr A was '[k]een to go home', and Dr Shepherd advised that the patient's enthusiasm and readiness for discharge, 'particularly in the setting of chronic severe health conditions and pre-existing functional impairment', forms a 'major component' of that assessment.

123. Dr Shepherd advised that given Mr A's significant comorbidities, 'his already long duration admission with yoyoing "stability"', and his clearly expressed wish to go home, he would regard this as only a mild departure from the expected standard of assessment of stability.

124. I accept this advice. However, while I appreciate that assessment of clinical stability would have been challenging in the context of significant cardiovascular comorbidity, advancing age, and respiratory disease, with the potential to deteriorate suddenly, I am concerned that the evidence of ongoing physiological instability (in particular, the difficulty weaning Mr A off high-flow O_2, his worsening renal function, and low BP) was not considered further when assessing Mr A's clinical stability prior to discharge.

Review of medications prior to discharge

125. On admission, Mr A was diagnosed with AKI, which worsened during his inpatient stay. He was also noted to be bradycardic and hypotensive on multiple occasions. Mr A was treated with various medications to balance his diagnoses, including losartan and propranolol (which were regular medications for him and continued on discharge).

126. Health NZ acknowledged that there was an opportunity to review his medications in the pre-discharge period, in light of his hypotension, and stated that it would have been appropriate to 'more proactively' manage the combination of his propranolol and losartan medications prior to discharge.

127. Dr Shepherd commented on the appropriateness of continuing Mr A's propranolol and losartan use at discharge. He advised that propranolol is a recognised contraindication in the setting of asthma or COPD, which was noted in Dr D's clinic letter, and Dr D suggested reducing Mr A's propranolol as this was likely exacerbating his breathing difficulties (as per paragraph 12). Dr Shepherd advised that the propranolol was 'potentially contributing' to

Mr A's recurrent hypotension, bradycardia, and worsening renal function, and, in addition, the losartan (prescribed in a high dose) was potentially 'further contributing to his deteriorating renal function'.

128. I accept Dr Shepherd's advice and am concerned that the use of propranolol and losartan were not reviewed by Health NZ, considering the adverse effects these medications were having on him. Although Dr D's suggestion to reduce Mr A's propranolol was noted by a GMHO on review of Dr D's clinic letter (as per paragraph 28), it does not appear to have been considered adequately. In addition, while I acknowledge that losartan was withheld during the inpatient admission due to Mr A's AKI (as per paragraph 37), I also note that it was to be continued on his discharge.

129. I acknowledge Health NZ's admission that it would have been appropriate to manage the combination of Mr A's propranolol and losartan medications proactively prior to his discharge. I remind Health NZ of the importance of taking every opportunity to review the continuation of medications adequately when adverse effects arise.

Conclusion

130. In my view, the adequacy of discharge planning in relation to Mr A's need for home O_2 fell short of the accepted standard of care.

131. While I acknowledge that Mr A's significant medical history and multiple competing comorbidities made discharge planning around his clinical stability challenging, I consider that given his circumstances, he should have been discharged with home O_2.

132. I am critical that rather than investigating Mr A's home O_2 availability further, Health NZ relied on incorrect assumptions, which resulted in an inadequate assessment of his need for home O_2 prior to discharge. In addition, I am concerned that a review of his medications was not undertaken prior to discharge, despite the adverse effects these were having on him.

Decision to discharge

133. Health NZ stated that the decision to discharge Mr A on 18 Month6 was based on clinical improvement and stability, balanced with his desire to go home. In addition, Health NZ told HDC that 'the context for the team's decision making through the period of the admission and on discharge' was that they were 'working on the mistaken belief' that Mr A had been prescribed home O_2, consistent with STOT capability, by Dr D, and therefore he had met the requirements for continuing STOT at the time of discharge.

134. Dr Shepherd advised that it was not appropriate to have discharged Mr A on 18 Month6, and I accept this advice.

135. In this instance, the culmination of omissions and inadequacies of Mr A's planning, particularly surrounding his O_2 availability at home, meant that the decision to discharge him was inappropriate. While I remain critical that further investigations into Mr A's need for O_2, and in particular his O_2 availability at home, were not undertaken, I acknowledge that

Mr A's inappropriate discharge was a consequence of the incorrect assumptions and miscommunications that occurred, rather than a separate failure by Health NZ.

Discharge advice

136. Mr A's discharge summary did not document any specific recommendations around GP review or discharge advice regarding O_2 use at home and noted that no general medical follow-up was needed, although clinical notes document that '[r]return advice' was given.

137. Health NZ told HDC that the plan for GP review post-discharge was not explicitly outlined in the discharge summary (as it should have been) and, as staff 'were working on the mistaken belief' that Dr D had prescribed Mr A home O_2, consistent with STOT capability, it was 'incorrectly assumed' that Mr A and his wife were familiar with how to use it, and that follow-up for his 'optimization and education of respiratory care' would be occurring in the private sector following his scheduled outpatient tests.

138. Health NZ stated that the expected discharge advice regarding Mr A's O_2 use at home 'was dependent on what he was already on, and what he had been advised to do by [Dr D]', although it acknowledged that in hindsight, this had not been established clearly. Dr Shepherd considered this to be 'an optimistic view of [Mr A's] management circumstances' and advised that the adequacy of information provided to Mr A on discharge regarding the use of O_2 fell short of the accepted standard of care.

139. Dr Shepherd advised that as O_2 is regarded as a medical therapy/intervention and drug, it would be expected that O_2 would be stated clearly on the discharge summary, including advice around its use. As noted by Dr Shepherd in paragraph 98, there was limited specific discharge advice around Mr A's O_2 use.

140. In addition, Dr Shepherd considered it 'unusual' that no specific recommendations around timely review in a GP setting or general medical follow-up were made, given Mr A's 'long, complex and unstable admission where early medical review was likely to be anticipated'. However, Dr Shepherd acknowledged the challenges in accessing GP services during the holiday period and stated that this 'may have confounded the usual post-discharge GP follow-up advice'.

141. I accept Dr Shepherd's advice and, while I acknowledge Health NZ's admission that the plan for timely GP review post-discharge should have been advised, as well as the limited access to GP services over the holiday period, I am concerned that neither a recommendation for GP review nor general medical follow-up was made, given Mr A's unstable admission and complex medical history.

142. Furthermore, while I acknowledge that Health NZ had *incorrectly assumed* that follow-up for Mr A's optimisation and education of respiratory care was occurring in the private sector, and that Mr A did not, in fact, have prescribed O_2 at home, I consider that this does not negate Health NZ's duty of care to provide appropriate discharge advice, particularly on Mr A's recommended target saturations. Given that 'one of the crucial parameters' that led to Mr A being cleared for discharge was meeting a target saturation that could 'realistically' be

achieved at home (as per paragraph 55), these target saturations should have been documented.

Conclusion

143. Health NZ Waitematā is responsible for the operation of the clinical services it provides and has an organisational duty to provide an appropriate standard of care to consumers of its services.

144. Overall, as outlined above, there were significant issues with the care Mr A received at Health NZ. In particular:

- Health NZ failed to investigate Mr A's home O_2 availability, which resulted in an inadequate assessment of his need for home O_2 prior to discharge.
- Given the evidence of ongoing physiological instability, the assessment of Mr A's clinical stability prior to discharge was inadequate.
- Health NZ failed to review Mr A's regular medications appropriately, despite the adverse effects these were having on him.
- Given the culmination of omissions and inadequacies of Mr A's planning, it was not appropriate to have discharged Mr A on 18 Month6; and
- Health NZ failed to provide appropriate discharge advice, particularly Mr A's recommended target saturations.

145. I acknowledge the stated miscommunication and incorrect assumptions made by Health NZ surrounding Mr A's O_2 use, which affected the decision-making around his discharge from hospital. However, I remain of the view that the failure to investigate further and test these assumptions was unacceptable, particularly for a patient such as Mr A, who was reliant on O_2 being available and prescribed and administered correctly on his return home.

146. Accordingly, I find that Health NZ Waitematā did not provide Mr A services with reasonable care and skill, and therefore breached Right 4(1) of the Code of Health and Disability Services Consumers' Rights (the Code).[60]

Resuscitation — educational comment

147. Mr A was re-admitted to hospital on 19 Month6, with right heart failure, severe pulmonary hypotension, and worsening AKI. After attempted treatment, the general medical team agreed that Mr A was 'currently at [the] ceiling of care', and his resuscitation status was changed to 'not for CPR'/NFR, on a 'Medically Inappropriate CPR' basis.

148. The ICU registrar met with the family to discuss Mr A's 'not for CPR'/NFR status and it is documented that the family understood this, although Health NZ told HDC that it is not

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

recorded whether the 'concept' of CPR was discussed specifically or whether it was confirmed that the family fully understood what NFR meant.

149. Mr A suffered a cardiac arrest; however, Ms B voiced objection to the NFR status and therefore a 777 call was made. Health NZ told HDC that the 777 call was 'likely' made as Ms B 'was distressed at the rapid turn of events and wanted CPR to commence'. Two rounds of CPR were performed, but Mr A remained in asystole, and it was decided that 'prolonged CPR was not in [Mr A's] interest' and CPR was stopped.

150. Regarding resuscitation decisions and discussions, Dr Shepherd acknowledged that 'this can be a challenging area'. He advised that as Mr A was not for resuscitation on grounds that it would be medically inappropriate, his resuscitation proceeded against Health NZ Waitematā's resuscitation policy (outlined in paragraph 85). Despite the ICU registrar documenting that Mr A's family 'understood [his] situation and that he would remain at ward-level ceiling of care', Health NZ acknowledged that it is clear from the family's comments (including questions asked by family during the discussion about CPR) that they did not share the same understanding of Mr A's longer-term prognosis or treatment pathway. Dr Shephard considered that this could have been performed to a higher standard, and that this 'may have contributed significantly to the distress associated with [Mr A's] care' for his family, staff, and 'ultimately [Mr A] himself in the terminal phase of his life'.

151. I accept this advice and am mindful of the sensitivity of this topic in making the following comments.

152. As recognised by Health NZ, there was a missed opportunity to bring all parties to a shared understanding regarding Mr A's condition. Although Dr E recalls telling Mr A that his medical issues were severe and irreversible (as per paragraph 34), I am concerned that the family were not made aware of his prognosis or his treatment pathway during his 10-day admission, which undoubtedly contributed to their distress on his readmission and resuscitation. Furthermore, while Mr A's NFR status was discussed with the family, and it is documented that they were understanding of his situation, it is unclear whether the concept of CPR was discussed and whether they understood what NFR meant specifically. Had there been earlier and timely communication with Mr A's family about his outlook, they may have been better prepared to understand and accept the decision that it was medically inappropriate to resuscitate.

153. Given Mr A's circumstances and diagnoses, it was determined that he was at the ceiling of care. The ICU registrar explained that if Mr A were to be intubated and ventilated, he would never be able to come off a breathing machine, resulting in distress for him and the family. While I acknowledge and sympathise with Ms B's distress at the unfortunate circumstances, and that her distress factored into Health NZ's decision-making surrounding the commencement of CPR, I consider that when a clinician has determined that resuscitation is not medically appropriate, it should not be performed, and the views of family members are not binding.

154. I am therefore concerned that Health NZ Waitematā did not follow its resuscitation policy, and that CPR was performed, despite it being deemed medically inappropriate. I remind Health NZ of the importance of following resuscitation policies to ensure dignity to patients in their last stages of life, and of the need for timely, sensitive, and sufficiently clear discussion with family members regarding patient prognosis and treatment pathways.

Changes made since events

155. Since these events, Health NZ Waitematā has made, or is in the process of making, the following changes:

a) It has implemented the Health Quality and Safety Commission's 'Shared Goals of Care Programme' (which has been formally released nationally), having initially piloted it in its medicine services between 2020 and 2021. The programme provides a valuable platform for discussions with family members, to bring all parties to a shared understanding of a patient's prognosis or treatment pathway.

b) It is in discussion with the respiratory service as to whether an additional criterion for referral to the respiratory CNS service should be included for any patient admitted who informs Health NZ that they are on home O_2. Health NZ told HDC that there is nothing on the Electronic Discharge Summary to flag O_2 therapy, such as STOT, and consideration will be given to whether this could be added, potentially as a regional systems change.

Recommendations

156. I recommend that Health NZ Waitematā:

a) Provide a written apology to Mr A's family for the deficiencies in care 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.

b) Provide an update on the changes made outlined above — in particular, evidence of the implementation of the shared goals of care programme, and an update of referrals for respiratory CNS review of all inpatients who report using home O_2. This update is to be provided to HDC within six weeks of the date of this report.

c) Review the discharge policy and documentation to ensure that all discharges are well planned. Consider using a document where all staff can record discharge concerns (identified by staff or patients and whānau) that need to be addressed and resolved by the discharging team as part of the discharge process, ie, specialist reviews; medication review; oxygen prescription review on discharge; and ensuring that required equipment and prescribed oxygen are available on return home. Health NZ is to report to HDC on the changes made to its discharge policy and documentation.

d) Audit the discharge documentation of 20 medical patients (over the last six months) who were identified as using home O_2 and report on how many of those patients were given explicit written oxygen instructions at the time of discharge. If 100% audit

compliance was not obtained, please provide a report to HDC on how performance will be improved in future.

e) Use this case as a basis for developing education/training on the importance of critical thinking during discharge planning. Evidence confirming the content of the education/training in the form of training material, and delivery in the form of attendance records, is to be provided to HDC.

f) Review the education/training being provided to staff in relation to communication of medically inappropriate CPR decisions and resolution of differences of opinion (including the option of seeking a second opinion). Evidence of the education/training having occurred, in the form of training material and staff attendance, is to be provided to HDC.

157. Recommendations c) to f) are to be provided to HDC within six months of the date of this report.

Follow-up actions

158. A copy of this report with details identifying the parties removed, except Health New Zealand|Te Whatu Ora, Health NZ Waitematā, North Shore Hospital, and the independent clinical advisor, will be sent to Health New Zealand|Te Whatu Ora, MedSafe, the Health Quality & Safety Commission|Te Tāhū Hauora, HealthCERT, and the Royal Australasian College of Physicians, 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 independent clinical advice was obtained from internal medicine specialist Dr Richard Shepherd:

'Independent Medical Advice to the Commissioner

Date: 26/08/2022

Complaint: Waitematā District Health Board

Your Ref: C21HDC00557

My name is Dr Richard Shepherd. I have been asked to provide an opinion to the Commissioner on case number C21HDC00557 regarding the care the late [Mr A] received from Waitematā District Health Board during his care in [2020]. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors. I am a Consultant General Physician employed by Health New Zealand Waikato (Waikato District Health Board). I graduated from Otago Medical School in 1997 with a Bachelor of Medicine and Surgery (MBChB). I have attained fellowships with the Royal New Zealand College of Urgent Care, The Division of Rural Hospital Medicine and the Australasian College of Physicians. I have subspecialty interests in nephrology, emergency medicine and palliative care. I have completed the Auckland University Postgraduate Diploma of Community Emergency Medicine, the RACP Clinical Diploma in Palliative Medicine, the Otago University Certificate in Physician Performed Ultrasound and the Auckland University Postgraduate Certificate in Health Leadership, including quality and safety. I have no conflicts of interest to declare in this case. I have been requested by the Commissioner to provide expert advice on the following issues:

Expert advice requested: Please review the enclosed documentation and advise whether you consider the care provided to [Mr A] by Waitematā District was reasonable in the circumstances and why. In particular, please comment on:

Whether there was an adequate assessment of [Mr A's] clinical stability and ability to manage at home prior to his discharge on 18 [Month6];

Whether there was adequate and appropriate information provided to [Mr A] on discharge regarding the use of supplementary oxygen;

Whether there should have been a more formal assessment of the need for continuous or ambulatory oxygen prior to discharge; in particular, was there an indication for inpatient involvement of the District respiratory service (which [Mr A] had previously been under) and/or notification of the District respiratory physician [Dr D] whom [Mr A] had seen privately earlier in the year?

Whether it was clinically appropriate to discharge [Mr A] on 18 [Month6]; and

Any other comments you may have on [Mr A's] management, including management of oxygen supplementation, discharge advice and follow-up arrangements?

For each question, please advise: What is the standard of care/accepted practice? 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? How would it be viewed by your peers? Recommendations for improvement that may help to prevent a similar occurrence in future.

Background Information Provided: This complaint relates to the care provided to [Mr A] (dec) by Waitematā District. [Mr A] was admitted to North Shore Hospital on 8 [Month6] with symptoms of light-headedness, chest pain, shortness of breath, and possible vomiting of blood. He was stabilised in the Emergency Department (ED) and then admitted to a medical ward with unstable angina, with a background of severe ischemic heart disease, pulmonary hypertension, and Chronic Obstructive Pulmonary Disease (COPD). He was discharged on 18 [Month6]. His condition rapidly deteriorated in the 24 hours following his discharge, and he was re-admitted to the hospital after becoming increasingly short of breath and dizzy. On examination, it was considered that this was due to his right heart failure and severe pulmonary hypertension. [Mr A] continued to deteriorate, and he later died.

Advice to the Commissioner:

Whether there was an adequate assessment of [Mr A's] clinical stability and ability to manage at home prior to his discharge on 18 [Month6];

In terms of his clinical stability: In my opinion, there were likely less than ideal assessments, or perhaps judgement calls, of [Mr A's] clinical stability prior to his discharge. However, without the benefit of hindsight, I would regard those as a mild departure from the anticipated standard of care, tempering any more significant criticism against his complexity, comorbidities and an acknowledgement of his "inherently stable clinical instability". I would regard my peers as potentially being split in considering the degree of adequate assessment and any potential deviation from the accepted standard, but I am mindful of the role of retrospective bias in this case. I have no specific recommendations regarding improvement in this area other than to note a reflection on the advantages of involving the allied health team and respiratory clinical nurse specialists in discharge planning, particularly involving complex clinical scenarios. A consideration of the discharge planning process could be considered. In terms of his ability to manage at home: In my opinion assessment of his ability to manage at home, particularly surrounding his oxygen availability, likely fell well below the expected standard of care. If his oxygen use, and its availability, were not adequately assessed prior to his discharge (and so he was effectively discharged without having oxygen at home or with only limited bottled oxygen not available for continuous use), then I would regard that as a moderate to severe departure from the expected standard of care. This would be particularly given that he was rarely off oxygen over his ten-day stay in hospital and would have been expected to potentially decompensate given his circumstances if it was not available at home. I would elaborate further on his oxygen use in questions 2 & 3 below. Standard of Care: Defining the standard of care for adequate assessment of clinical stability and ability to manage at home is not a clearly

defined one, and as such, will vary based on individual clinician assessment — modified by input from nursing staff, allied health, and the patient and their family/caregivers. Such an assessment is often straightforward but can become very challenging in the setting of significant cardiovascular comorbidity, advancing age, and respiratory disease with the potential to deteriorate suddenly. In [Mr A's] situation, the presence of severe competing comorbidities included: recent pneumonia, exacerbation of his obstructive lung disease, a heart attack, exacerbation of heart failure/cor-pulmonale, severe pulmonary hypertension, chronic renal impairment with a recent acute kidney injury, and the necessary multiple drugs required to balance his conditions. This created a prognostically, inherently unstable, clinical scenario. The ten-day period of hospital admission further provides evidence of the challenges involved in treating him and reaching "*clinical stability*". In my opinion, anticipating significant "*clinical stability*" in such circumstances would be a very inexact science and subject to much "*benefit of hindsight*" criticism if a discharge "*failed*". That said, from a clinical assessment basis, it would be an accepted standard that the patient's ability to manage at home would be assessed based on factors such as the vital signs relevant to the patient, the results of their relevant investigations and their stability, the medical response to treatment given, the anticipated ongoing treatment needed, and recent progress in hospital. A functional assessment would generally be anticipated around ADLs (Activities of Daily Living) with a comparison to recent function at home and ability to manage recently at those levels. Such an assessment might be expected to include the history given of function, as well as a physical assessment of capacity. This might be performed by the medical team, the nursing staff, or allied health team members in a multidisciplinary discharge planning manner. The patient's view of their ability to manage and enthusiasm for readiness for discharge, particularly in the setting of chronic severe health conditions and pre-existing functional impairment, would often form a major component of that assessment. Family, caregiver views and social worker input would also be anticipated in situations where concerns were raised, or differences of opinion occurred. In this case, medical assessment on the day of discharge documented stability of [Mr A's] observations (including pulse, BP, oxygen saturations of 92% on 2L) and stability of some of his blood results (stable inflammatory markers (CRP 12 and 13). Perhaps with the benefit of hindsight and knowledge of what was to come next, his renal function continued to be less than stable (Cr 170 on admission (Normal 60–105), 141 at its best and 188 on discharge). His ongoing low pulse rate (50–60) and low BP (even dramatically low over the two days prior to discharge at 80/50 & 82/56) ensured he was reviewed by the "Critical Care Outreach Team" the day before discharge with him consistently scoring in the EWS (early warning score) of 2–3 for his BP. In the three days prior to discharge, a degree of "stable instability" does then appear to have been present. This was noted by his attending medical staff, and his low BP appears to have been considered to be due to his isosorbide medication which was stopped on the day of discharge. His ongoing bradycardia (slow heart rate) and review of his other medications, (potentially contributing to his recurrent hypotension and again worsening renal function (Losartan 50mg & Propranolol 160mg)), do not, however, appear to have occurred. It might then be argued that there was clear evidence of physiological instability over the 2–3 days prior to discharge together with a number of

changing circumstances — i.e. worsening renal function (Cr 188 on discharge 18/12) after earlier significant improvement (Cr 141 10/12), IV bolus fluids for low BP the day before discharge, ongoing Critical Care Outreach Team consultation, stopping of isosorbide the day of discharge, and change from high flow nasal oxygen to 2–3L standard nasal oxygen the evening before (20:44hrs) discharge with limited time to assess for stability. Under such circumstances, in my opinion, clinical stability could not be said to have been present. Weighing on the other side of that equation, [Mr A] was noted on the day of discharge to be "*Pt mobilising well. No complaints overnight. Keen to go home*". He was documented in the medical notes as "Safe for discharge today — "*Pt happy to leave now and have discharge paperwork sent to him, has scripts at home.*" He was documented by nursing staff as being "*up to the toilet, nil resp distress noted. Slept well overnight nil other concerns raised*." There was evidence in the medical notes of a "*weaning*" of care requirements. I.e. a move from IV to oral antibiotics, attempted weaning down of oxygen flow rates, and statements around discharge goals "*Aim D/C early next week, this weekend if remains stable*" (written on a Thursday). Given his significant comorbidities, his already long duration admission with yoyoing "stability", and his clearly expressed wish that he wished to go home, I would therefore struggle to be overly critical that a significantly greater than mild deviation from a reasonable accepted standard of "assessment of stability" occurred. It is noted that no allied health (physiotherapy, occupational therapy, social worker, respiratory clinical nurse specialist) input occurred during his 10-day admission. Given his stated functional limitations, I find that unusual and pause for reflection, but as noted above, no specific concerns appear to have been raised by the family, the patient, or the nursing staff. Under such circumstances, it would be difficult to consider any definite significant deviation from the expected standard occurred. Medical notes around any specific assessment of his ability to manage at home are acknowledged as very limited. The response from the DHB regarding that potential issue stated, "*[Mr A] was using a commode independently, and his wife was assisting to help him with showers. He was unable to mobilise as he was on high flow oxygen but appeared able to reposition himself in bed. Not all patients with SOB (shortness of breath) need to be seen by MDT (Multidisciplinary Team), and with his medical condition, [Mr A] would be expected to be SOB at times*". The issues around his oxygen availability at home, is, however another matter and materially very important and woven into any assessment around his "ability to manage" — and ultimately how stable he might be expected to be at home! There is no documentation that this occurred with "assumption" around his oxygen prescription acknowledged by the DHB as the care that was provided. Given the circumstances, I would regard that as a moderate to severe departure from the expected standard of discharge planning.

Whether there was adequate and appropriate information provided to [Mr A] on discharge regarding the use of supplementary oxygen;

In my opinion, the adequacy of assessment and information provided to [Mr A] regarding the use of supplementary oxygen likely fell short of the accepted standard. I would regard that as likely of a moderate to severe degree of deviation. I would

anticipate my peers as likely to hold similar views without significant controversy. Standard of Care: Oxygen is regarded as a medical therapy/intervention and drug. As such, it is required to be prescribed on the inpatient medical chart with parameters around its use — i.e. flow rate, method of delivery and the target saturations. As a "drug", it would also be the expected standard that its use, and parameters around its use, would be clearly stated on the discharge summary, including the advice given to the patient. In [Mr A's] case, his underlying diagnosis of severe COPD, cor pulmonale and severe pulmonary hypertension (PH) meant that domiciliary supplemental oxygen use would likely be anticipated as an accepted standard of care. Supplemental oxygen is typically prescribed for patients in group 3 PH who have hypoxemia (at rest or during exercise or sleep) with a goal of maintaining a peripheral oxygen saturation between 90 and 96%. Supplemental oxygen has been documented to improve survival and pulmonary vascular resistance in patients with COPD-associated PH who also have documented hypoxemia (i.e., partial arterial pressure of oxygen [PaO2] below 60 mmHg). Criteria for the use of oxygen have been stated as (UpToDate): https://www.uptodate.com/contents/pulmonary-hypertension-due-to-lung-disease-and-or-hypoxemia-group-3-pulmonary-hypertension-epidemiology-pathogenesis-and-diagnostic-evaluation-in-adults

Indications for long-term oxygen therapy

General indications
PaO_2 ≤55 mmHg (7.32 kPa) or SaO_2 ≤88 percent
In the presence of cor pulmonale
PaO_2 ≤59 mmHg (7.85 kPa) or SaO_2 ≤89 percent
EKG evidence of P pulmonale
Hematocrit >55 percent
Clinical evidence of right heart failure
Specific situations
PaO_2 ≥60 mmHg (7.98 kPa) or SaO_2 ≥90 percent with lung disease and other clinical needs such as sleep apnea with nocturnal desaturation not corrected by CPAP.
If the patient meets criteria at rest, O_2 should also be prescribed during sleep and exercise, and appropriately titrated.
If the patient is normoxemic at rest but desaturates during exercise (PaO_2 ≤55 mmHg [7.32 kPa]), O_2 is generally prescribed for use during exercise. For patients who desaturate (PaO_2 ≤55 mmHg [7.32 kPa]) during sleep, further evaluation with polysomnography may be indicated to assess for sleep-disordered breathing.

In [Mr A's] circumstances, underlying cor pulmonale with clinical and echocardiogram evidence of right heart failure existed. Recurrently documented saturations of <89% appear to also have been present. [Mr A] does not appear to have tolerated being off oxygen for any significant period over his ten-day admission. His attending nursing staff noted challenges in weaning his oxygen from high flow nasal oxygen delivery to standard, available at-home nasal prongs. Assessment for any significant desaturation on exercise or activity does not appear to have been performed. He was documented as an ex-smoker with no apparent contraindications to home oxygen use. He had also

been documented as having oxygen at home but only to be using it intermittently "uses oxygen 3–4x per day for SOB". It would therefore have been a reasonable expectation that for adequate treatment of his type 3 PH, cor pulmonale, and underlying COPD, continuous long-term home use of oxygen for at least 15 hours per day targeting an oxygen saturation of 90%–96% would have represented the standard of care for a prognostic survival benefit — and in his circumstances of acute deterioration for a symptomatic benefit.

It is unclear from the medical notes available to me when, how or by whom oxygen therapy was initiated, or the nature of its prescription and recommendations around its use. His available private respiratory specialist letter in [Month1], some five months earlier, stated, "*I have requested formal lung function and 6-minute walk tests to be performed. If significant desaturation is demonstrated, he may be a candidate for portable oxygen."* It is unclear if a follow-up to that appointment occurred with the results leading to the prescription of oxygen. His readmission notes on 19 [Month6] state, "*Uses home O_2 from the pharmacy for COPD PRN*". There is limited documentation in the DHB notes over his first admission regarding [Mr A's] oxygen use. On 10th [Month6], the Medical House Officer documented, "*Says normally uses O_2 at home — 15 min bursts TDS, known to have SpO_2 86–90% according to him. On admission note — accepted SpO_2 88–92% given known COPD but preferred closer to 92%*". On the day before discharge from the DHB, the nursing notes document, "*Spoke to family regarding oxygen aims: as per family pt on 2L O_2 supply at home with aim sats 88–92%. Writer spoke to the HO to clarify the saturation aim and difficulty weaning off pt to NP, as pts usual saturation is between 88–92%*." The Waitematā Discharge summary 18 [Month6] documents "*No recent changes to medications — uses Oxygen 3–4x per day for SOB*." It is therefore unclear from the available medical notes whether [Mr A] obtained and paid for his own limited bottled oxygen privately, or what exactly his oxygen source was. No specific medical documentation regarding oxygen prescription recommendations, how it was provided to [Mr A] (concentrator, bottled oxygen for ambulatory use) or his available delivery methods and consumable supplies was documented. What seems clear from the available notes is that [Mr A] was not using his oxygen in accordance with standard guidelines for his circumstances and that this was not documented as having been specifically addressed during his admission.

The provided response from the DHB states, "*As he was under the care of a private respiratory specialist, it was assumed that it had been prescribed by them and that [Mr A] and his wife were familiar with how to use it. On reflection, we should have more fully investigated his current oxygen provision before he was discharged, as it would have provided an opportunity for the clinical team to ensure that the family had a good understanding of his situation, and I am sorry that this did not occur.*" [Mr A's] medical notes do, however, document how he was using his oxygen at home. It is not documented if that incorrect use was addressed and rectified prior to his discharge. In my view then, given [Mr A's] circumstances and diagnoses, continuous oxygen use was indicated on his discharge as representing the standard of care. There is very limited documentation of an adequate history around [Mr A's] oxygen use, its specific

prescription recommendations, or specific discharge advice around its use. This appears to have been a significantly overlooked aspect of his general medical care. Given the potential prognostic benefit and therefore significant influence oxygen may have had on his appropriate treatment; I would regard that as a moderate to severe deviation from the expected standard of care. The recurrent difficulties in weaning him off high-flow oxygen therapy over his hospitalisation should, in my view, have prompted a more detailed review of his oxygen prescription. If this occurred, it does not appear to have been documented in his medical records or provided as specific instructions on his discharge.

In terms of recommendations: In an ideal world of IT support, a discharge checklist integrated into the electronic medical record/discharge documentation would flag oxygen prescription details when a diagnosis of COPD (or other oxygen relevant respiratory diagnoses) was present. In my experience, the prescription of oxygen both in the inpatient and outpatient settings is an area not infrequently overlooked. This is often brought to attention by the nursing staff when unsure what to set the oxygen levels at and when seeking a modification to the EWSs (National Early Warning Score) for chronically low oxygen saturations and prescribed target levels. In [Mr A's] situation, his target oxygen saturations appear to have been changed on multiple occasions by differing treatment providers with the House Officer most often involved without clear consultant-level direction of this aspect of his care.

Whether there should have been a more formal assessment of the need for continuous or ambulatory oxygen prior to discharge; In particular, was there an indication for inpatient involvement of the District respiratory service (which [Mr A] had previously been under) and/or notification of the District respiratory physician [Dr D] whom [Mr A] had seen privately earlier in the year?

In my view, there should have been a formal assessment of the need for continuous and ambulatory oxygen use prior to [Mr A's] discharge. If this occurred, it was not documented over the course of his care. I would regard that as a moderate to severe departure from the expected standard of care given [Mr A's] circumstances. Additional detail is provided in response to question 2 above. In terms of recommendations — I am experientially aware of the effectiveness of hospital systems that support patients with chronic medical conditions (such as COPD, Heart Failure, Renal Failure) through automatic notification of the relevant chronic disease specialist CNS (clinical nurse specialist) when they are admitted to hospital. This allows for coordinated and good follow-up of chronic (and often complex) care across primary and secondary/tertiary care. I am not aware of the specific systems in place in Waitematā around such services. Standard of Care: Significant confusion around [Mr A's] oxygen use, his target saturations, and his family's stated complaint around their understanding and knowledge of his oxygen use appear to exist. His readmission documentation on 19 [Month6] states, "*Not on home O_2 at home*," perhaps further highlighting confusion and the absence of earlier discharge documentation regarding his use of oxygen. Whether a specific indication for inpatient involvement of the District Respiratory service should have occurred is perhaps a matter of individual clinician judgement. In the setting of

general physician care, the presence of multiple comorbidities meant that care by a general physician was, in my opinion, appropriate. If a detailed oxygen history was obtained and satisfaction achieved around adequate supply, operation, consumables and effectively "the home oxygen setup", then in my view, I would not regard an inpatient respiratory oxygen service review as *mandatory*. That said, the presence of a number of factors might have led many general medical colleagues in a tertiary care setting to seek specialist respiratory physician input to consider if any optimisation of respiratory therapy from a specialist perspective could be considered. Such factors might have included: severe pulmonary hypertension and its investigation and management complexity, COPD with a significant reversible component (asthma), the prescription of β-blockers in the setting of "*an asthma component*" (which can represent a relative contraindication to their use with recommendations from the last consulting respiratory physician to wean off the (non-selective) β-Blocker (propranolol), the failure of isosorbide mononitrate use due to marked hypotension (suggesting significant right heart impairment), and a long challenging medically fragile admission. This might also have allowed the involvement of the Respiratory Clinical Nurse Specialist — experts in education around self-management, inhalers, home oxygen use and close follow-up of progress in the community. His private respiratory specialist letter from [Month1] also raised a significant number of specialist respiratory issues with numerous investigations suggested (HRCT, CT sinuses, formal lung function tests, 6-minute walk test and "*perhaps a right heart catheter test*". These significant specialist respiratory factors do not appear to have been mentioned, documented or followed up on over his hospitalisation. Whilst they may not have been indicated whilst acutely medically unwell, the results of such tests (if having been previously performed) might have contributed to his care. It is unclear from the available clinical records why a Respiratory Specialist consultation was not considered — particularly when, in my view, such areas were not addressed adequately by the general medical team. One might argue this might have been at least as an important speciality consultation as the requested Cardiology consult. Given that [Mr A] was initially for full treatment and resuscitation, rather than "palliative symptom-based care", in my opinion seeking an additional respiratory opinion had little to lose and much to potentially add.

Whether it was clinically appropriate to discharge [Mr A] on 18 [Month6]?

In my opinion, it was not appropriate to have discharged [Mr A] on 18th [Month6]. I would regard that as a likely mild deviation from the accepted standard if his oxygen was adequately available at home and he was able to use it correctly. If he did not have oxygen at home (i.e. it was not available for continuous use) I would regard that as a moderate to severe departure given earlier concerns discussed above regarding his potential instability. I would, however, acknowledge that my peers may weigh the multitude of factors present differently and reach differing opinions of a lesser deviation from an accepted standard of care, depending on their weighting of his comorbid factors and complexity. In my view, the devil was in the detail in this case, with a lack of attention to that detail (*and assumption*) ultimately complicating [Mr A's] care and, therefore, his appropriate discharge. Standard of Care: Returning to many of

the themes in question 1, in my opinion defining a clear standard of care with respect to this case is challenging and open to differing clinical opinions. If one removes the issues around his oxygen: One view may be that [Mr A] had evidence of ongoing physiological instability around the time of his discharge (episodes of very low BP, low heart rate, fluctuating oxygen levels and oxygen requirements, worsening renal function, and a decline from his baseline function). In the presence of the diagnoses that had been made at that stage, one might regard his personal enthusiasm for discharge might have been regarded as premature by some physicians in those circumstances. Others may have regarded such factors as not entirely outside of his expected clinical course given his comorbidities and that due to his "stable instability", a trial of discharge … and in keeping with the patient's views and shared decision making, might also be reasonable. Particularly as his observations on the actual day of discharge had improved. In the absence of a future crystal ball, I would accept that many reasonable physicians would regard that as appropriate decision-making.

With the benefit of hindsight and reflection, and perhaps in examining the detail in this case, I would make the potential observation that an additional factor related to his propranolol use may have contributed to [Mr A's] readmission and ultimately death — and therefore, the decision making around his discharge. I acknowledge the following comments are opinion based and perhaps speculative, but make the following observations from a potential improvement and recommendations standpoint. Each of his presentations to the hospital was associated with significant sinus bradycardia (documented as HR 40 by the ambulance crew each time), together with significant hypotension (BP 90/60 & BP unrecordable). No reasonable cause for this was identified with a type II heart attack and hospital acquired pneumonia occurring later. He remained relatively bradycardic over his entire first admission period (HR48–60 averaging <55), where his propranolol was never withheld. Even when quite unwell, he did not mount an appropriate tachycardic response — likely due to continuing to be given his propranolol β-blocker medication (which slows the heart rate and prevents an appropriate compensatory increase under circumstances of physiological stress). In addition, his non-selective β-blocker (propranolol) is recognised as a relative contraindication to being used in the setting of asthma, or a significant reversible component of airways disease (as it can lead to bronchospasm and worsen shortness of breath). This was noted by his private respiratory specialist with the comment made to consider a reduction in his propranolol and substitute for rizatriptan (to manage his migraines instead, for which the propranolol was prescribed). One might also reflect on the role his deteriorating renal function might have had on each of his "collapses" with low HR and BP, where decreased renal clearance of his propranolol (and therefore increased clinical effects in lowering his HR and BP) in the setting of his acute kidney injury might have further contributed to his physiological instability and decreased ability to mount an appropriate protective response. One might also reflect on the appropriateness of continuing his losartan at discharge in the prescribed (high) dose in the setting of his again worsening renal function and recurrently low BPs as further contributing to his deteriorating renal function. In essence, a domino scenario in the setting of his pre-existing very poor cardiorespiratory physiological reserve, hypoxic

episodes, deteriorating renal function and clearance from his body of his medications worsening any bronchospasm and SOB might have been created. At the time of his readmission on 19 [Month6], the ambulance noted his HR of 40 with unrecordable BP to the point of giving him medication to increase his HR and BP (atropine and metaraminol). At that point, his Cr had further increased to 255 (Normal range 60–110 — best in earlier hospital admission of 148). He remained bradycardic over the afternoon and evening (HR 45–50) with low BP and evidence of a metabolic acidosis due to poor perfusion of his tissues. A hypotensive arrest occurred that evening, from which he was not able to be resuscitated.

Any other comments you may have on [Mr A's] management, including management of oxygen supplementation, discharge advice and follow-up arrangements?
I have no further comments to make regarding oxygen use in addition to the above specific questions around oxygen use.

I have no further comments to make around the discharge advice in addition to those made above.

Follow-up arrangements do appear on his discharge summary of 18 [Month6], where outstanding tests of full lung function and a 6-minute walk test were noted to have been booked for 11th [Month7]. An appointment with his private respiratory specialist was anticipated to occur but was noted as having yet to be booked.

No general medical follow-up was arranged, and no specific recommendations around timely review in a General Practice setting were made — unusual following a long, complex and unstable admission where early medical review was likely to be anticipated. Return advice was however given. The … holiday period, with potentially challenging access to his usual GP, may have confounded the usual post-discharge GP follow-up advice.

In terms of "any other comments on [Mr A's] management," — I would also make further comments around [Mr A's] resuscitation for reflection.

Whilst acknowledging this can be a challenging area, in my view, this process could have been performed to a higher standard and may have contributed significantly to the distress associated with [Mr A's] care to the attending medical and nursing staff, his family, and ultimately [Mr A] himself in the terminal phase of his life. Over the course of his initial admission, [Mr A] was designated "for full resuscitation". At the time of his readmission being more acutely unwell on 19 [Month6], this was changed to "not for resuscitation". He was reviewed by the Intensive Care Medicine service following his emergency department resuscitation call at 09:56am. The impression was documented as "Not for ICU/HDU. Would not benefit from intubation and suspect that even NIV (non-invasive ventilation) would be of little benefit. Advise that he should not be for CPR." At 16:38hrs later that day, it was documented by the duty Medical Registrar "I have discussed the case with the on-call SMO [Dr E] — agrees that active ward measures have been carried out and currently at ceiling of care given ICU declined — further

deterioration would warrant supportive cares — can give trial of small amount of IV frusemide to see if this improves respiratory status". Further discussion was documented at 17:50hrs between the ICU team and [Mr A's] wife and daughter regarding his not-for-resuscitation status and decline for ICU care. Reasons for the decision and discussion around their questions concerning lung transplant were also documented. The Waitematā Resuscitation Policy does appear to have been followed with adequate documentation around resuscitation discussion, the parties involved, and the clinical reasoning behind the decisions reached. The change to "Not for resuscitation" status was recurrently stated in [Mr A's] notes based on a "Medically Inappropriate CPR" basis. At approximately 18:40hrs, a 777 arrest call was made. It was documented that "Daughter [Ms B] voiced objection to the NFR status earlier determined by joint ICU and Medicine input, so CPR commenced". The attending ICU Registrar recorded, "Good quality CPR in action, had been ongoing for approximately 5 minutes. Initial rhythm check showed PEA (pulseless electrical activity — a heart rhythm being present but no pulse). Given 1mg adrenaline and chest, compression continued. Following a further cycle of CPR and rhythm check, [Mr A] remained in asystole (no heart rhythm present). No signs of life. Discussion amongst medical team and myself, given significant co-morbidities and deterioration over the course of this re-admission prolonged CPR was not in [Mr A's] interest and stopped on this rhythm check." It is noted that the above management proceeded against the Waitematā DHB resuscitation policy authorised by the Chief Medical Officer "Resuscitation Status Discussion with Patients/Family — June 2018 & August 2021". This states: "3. Medically Inappropriate CPR Patients do not have the right to treatment when the likelihood of survival is so small that it would be regarded as medically inappropriate in the context of the patient's condition. Where cardiac arrest response is deemed to be an inappropriate procedure by the medical staff, it is senior medical staff responsibility to determine the information provided to each patient, (and/or family/whānau if the patient has diminished incompetence) and other members of the clinical team. The discussion should include the overall aims of the treatment and the reasons for the decision not to offer a Resuscitation and/or ceiling of care response."

Recommendations for improvement:

[Mr A's] case did appear to pose a number of challenges and potential learnings — though not necessarily always in clear breach of the standard of care. Some of that standard of care is open to medical judgement and opinion rather than always clearly falling outside of accepted standard practice. If not already performed, a review and discussion of [Mr A's] case might therefore benefit from a morbidity and mortality review process and case presentation to further discuss and disseminate any learnings to staff as it was difficult to consistently identify systems or procedural-based areas to support future improvement.

Dr Richard Shepherd
Date: 21/09/2022
Consultant Physician
General Medicine MBChB FRACP FDRHMNZ FRNZCUC'

The following further advice was obtained from Dr Shepherd dated 17 May 2023:

'**Independent Medical Advice to the Commissioner**

Date: **17/05/2023**
Complaint: **Waitematā District Health Board**
Your Ref: **C21HDC00557**

I have been requested by the Commissioner to provide further expert advice on the following issues:

Expert advice requested:

In August 2022 you provided advice to this Office in regards to the complaint [concerning Mr A].

By way of background, [Mr A] (aged [in his seventies]) was admitted to a medical ward on 9 [Month6] with unstable angina, having a background of severe ischemic heart disease, pulmonary hypertension, cor pulmonale and chronic obstructive pulmonary disease (COPD). During his hospitalisation [Mr A] did not appear to tolerate being off oxygen for any significant period.

Hospital staff were of the impression that [Mr A] was using prescribed oxygen from a private respiratory specialist and had this available at home. [Mr A] was discharged on 18 [Month6]; however, his condition deteriorated rapidly and the following day he was re-admitted to hospital. Resuscitation attempts were unsuccessful following a hypotensive arrest and [Mr A] died. The autopsy revealed cor pulmonale secondary to severe COPD.

The complainants are concerned that [Mr A] did not receive a full respiratory assessment and was not fully weaned off oxygen before being discharged, as he did not have supplemental oxygen at home. The complainants told hospital staff he wasn't using "home oxygen", but later told HDC he had a "natural ozone concentrator" at home that was purchased by them [online]. The concentrator use was not assessed or prescribed for [Mr A], but the complainants feel they made it clear to hospital staff that he did not have oxygen at home.

We have received further information from the provider and the complainants, and I would be grateful if you would please let me know if any of the information included in the attached documents causes you to amend the conclusion drawn in your initial advice or make additional comments?

Further Documents reviewed:

DHB Response to Notification 27/04/2023
Further Response for HDC from Complainants 26/02/2023

Advice to the Commissioner:

On reviewing the DHB's (Health New Zealand Waitematā) responses to the commissioner I set out my further comment in the same question format provided:

2/ A response to the issues raised in the independent advisor's report (enclosed). In particular, please address the advice regarding:

a) ***Whether there was a formal assessment of [Mr A's] need for oxygen prior to discharge, including review of his oxygen prescription and ability to manage at home, or please explain why this did not occur?***
The below DHB's comments do not cause me to significantly alter my original advice to the commissioner.

I would agree with the DHB view "*Unfortunately there is no record of a formal assessment of [Mr A's] need for oxygen prior to discharge, including a review of his oxygen prescription and ability to manage at home*."

I would also agree with the statement "*it was appropriate for [Mr A] to be assessed for Short Term Oxygen Therapy (STOT), to be provided at discharge and initially for the 6 weeks following that. Due to the medical team's misunderstanding about the details of the oxygen availability [Mr A] had at home, it was incorrectly assumed that this already met the capability required for continuing STOT at the time of discharge. This resulted in the opportunity for formal assessment being missed during his inpatient stay*."

I would consider at least a moderate departure from the accepted standard of care resulted. I would mitigate that departure against perhaps a severe departure due to the fragmented care between private and public, the stated misunderstandings around communication at the time decisions were made and the uncertainty around the documentation available. I would however also accept some of my General Medical Colleagues may regard that as an overly positive view when the case is viewed as a whole — particularly the issues around oxygen assessment, assessment and management of his respiratory illness and his discharge.

The question around an assessment of his ability to manage at home does not appear to have been addressed specifically in the DHB response.

b) The rationale for [Mr A's] new target oxygen saturation on 17 [Month6] and whether his oxygen use was within standard guidelines for his circumstances; if oxygen use was not within guidelines, please explain whether/how this was addressed?
I have no additional comments to make.

c) Whether specialist respiratory physician/CNS input was sought to consider optimisation of [Mr A's] respiratory therapy/education/follow-up?

The below DHB response does not cause me to alter my initial response to the Commissioner.

In my view I would continue to struggle to rationalise the DHB statements around deferring care and decision making and the justification for doing so. In my view this was not good or adequate care.

The DHB response states *"Specialist respiratory input was not sought formally with regards to [Mr A's] oxygen management". From the DHB response* this appears to have been due to the medical team's misunderstanding about the details of the oxygen availability at home.

The question of why inpatient optimization of his respiratory illness was not sought (not just his oxygen use) was not specifically addressed in the DHB response. The basis for not providing adequate care over the time of [Mr A's] inpatient admission could perhaps be inferred as *"Follow-up for his optimization and education of respiratory care was believed to be occurring in the private sector, following his scheduled OP diagnostic testing."* In my view this perhaps underlies the recurrent absence of attention to the detail in this case and the accepting of the most superficial of *"beliefs"* without investigating further.

d) What would be the expected advice on the use and parameters for supplementary oxygen therapy on [Mr A's] discharge and why this was not documented on his discharge summary of [Month6]?

In essence the DHB response does not change my overall view in respect to the standard of assessment and management [Mr A] received particularly around his oxygen use. Again in my view this was at least a moderate departure from the expected standard of care as stated above.

I note the DHB statement *"The expected advice to [Mr A] with regards to his use of oxygen was dependent on what he was already on, and what he had been advised to do by his private respiratory physician. Unfortunately, in hindsight this had not been clearly established".*

In my view that would be an optimistic view of his management circumstances.

I would specifically note that I do not agree with the DHB's comments and retrospective application of a limited snapshot of patient data some 6 months earlier from the [Month1] Outpatient Respiratory letter to justify the poor management that occurred and the statements around LTOT (Long Term Oxygen Therapy) and STOT (Short Term Oxygen Therapy). The available clinical notes at the time decisions were made in my view do not support any sense that oxygen evaluations were *"necessarily deferred in [Mr A's] case".* In my view they were simply not adequately reviewed or investigated and as a result the acknowledged inadequate treatment resulted.

e) What further assessment/advice/action would be expected for a person in [Mr A's] situation who was using a natural ozone concentrator at home?

The below further information does not cause me to alter my original advice to the commissioner:

In my view there was very limited documentation of an adequate history around [Mr A's] oxygen use, its specific prescription recommendations, or specific discharge advice around its use. This appears to have been a significantly overlooked aspect of his general medical care. Given the difficulties in weaning his oxygen and the potential significant influence oxygen may have had on his appropriate treatment, I would regard that as a moderate to severe deviation from the expected standard of care.

The original clinical notes did not provide any clarity regarding what [Mr A] was or was not using with respect to his oxygen — or even how the oxygen was obtained or its delivery method. From the DHB further response it appears [Mr A] purchased his own … oxygen concentrator without specific medical advice around its use or indication. This is new information provided to me. The DHB states *"It does not appear that either [Dr D] or the inpatient team were aware of the nature of the oxygen delivery device [Mr A] and his family had purchased. [Dr D] … was not consulted, nor … advice sought regarding this purchase"*.

On contacting the [supplier it] is a small portable oxygen concentrator machine branded and sold directly to the consumer by the company. It is no longer available having been replaced by [another] model. It is not an ozone producing machine but is capable of supplying STOT or LTOT. The model proved very popular during the COVID pandemic lockdowns for direct to consumer sales.

3. Please comment on Health New Zealand Waitematā's co-ordination of care with private respiratory physician [Dr D]. In particular, please comment on:

a) Whether information about [Mr A's] oxygen use at home and target oxygen saturations were validated with [Dr D] or any other source?

The DHB response does not cause me to alter my original advice to the commissioner.

I would disagree with the DHB's further response. In my view there was no attempt made to adequately review [Dr D's] letter (Private Respiratory Physician) at a senior DHB treating physician level. There was no inpatient consideration of the multiple significant suggestions and investigations recommended or to adequately further evaluate the correct status of his oxygen use — some 6 months following that letter. These in my view were important aspects of his care, prognosis and management considerations. In my view such considerations would have materially influenced the care he received.

I would agree the issue of the oxygen saturations would have been based on an assessment at the time and would also agree with the DHB view that the prescribing of oxygen did not meet the accepted standard. *"It was not perfectly executed as use of the hospital's electronic prescribing of oxygen was not utilized, which it should have been."*

b) Whether any changes to [Mr A's] medications were considered appropriate during the inpatient admission; in particular, medication changes suggested in [Dr D's] treatment plan or in response to his inpatient observations?
The DHB response does not cause me to alter my original advice to the commissioner.

I would agree with the DHB statement *"It would have been appropriate to more proactively manage that (*review of his medications*) prior to discharge."*

c) Whether tests and investigations planned by [Dr D] (i.e., full lung function and 6-minute walk tests) would be expected to be undertaken by Health New Zealand Waitematā, or whether it is commonly available through private providers?
I have no further comments and agree with the DHB response.

d) Whether home oxygen would ordinarily be available only through Health New Zealand Waitematā, or whether it is commonly available through private providers?
I have no further comments and agree with the DHB response.

4. Please explain why no outpatient follow-up was arranged for [Mr A] on discharge and why no recommendations for general practice review were made?

I have no further comments to make and would agree with the DHB statement "*We acknowledge that the plan for general practice/primary care review post-discharge in a specific timeframe was not made explicit in [Mr A's] discharge summary, and should have been.*"

5. The rationale for the Health New Zealand Waitematā resuscitation policy not being followed during [Mr A's] resuscitation on 19 [Month6]?

I have no further comments to make and would agree with the DHB statement "*There was a missed opportunity to bring all parties to a shared understanding*."

6–9. I have no input in questions 6–9.

10. Any other information Health New Zealand Waitematā considers relevant?

Overall the further responses provided by the DHB do not cause me to significantly alter my initial response to the commissioner. They have however clarified some of the previous areas of uncertainty and more specifically identified potential areas for improvement.

I would agree with the DHB's closing remarks:

"It is clear in hindsight there was breakdown in communication/understanding between the medical/nursing staff and [Mr A] as well as the medical/nursing staff and [Mr A's] family. This resulted in [Mr A] receiving care at hospital discharge that did not meet Waitematā's standards and led to the events our responses to the HDC have described."

I would however also take that further and reiterate my initial stated view that aspects of his medical care during his inpatient care also did not meet the accepted standard of care. These fell outside of communication issues alone, and in my view, related most significantly to inadequate history, poor review of prior medical history (including the specialist respiratory advice) and superficial consideration of the clinical circumstances in adequate detail to avoid assumptions, and incorrect "*beliefs*". In a tertiary care institution with access to a Respiratory Specialist Service pause for thought around thresholds for specialist CNS input into significant chronic disease issues would seem reasonable.

I would note Responses 6, 7, and 8 from the DHB (now Health New Zealand Waitematā) appear to be considering system based enhancements around this issue to support improved care in the future.

Dr Richard Shepherd

Date: 17/05/2023

Consultant Physician General Medicine
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