Wairarapa District Health Board

and

District Health Board 2

A Report by the

Health and Disability Commissioner

(Case 16HDC00984)

Health and Disability Commissioner

Te Toihau Hauora, Hauātanga

Contents

Executive summary

1. Ms A, aged 42 years at the time of events, presented to Wairarapa DHB Emergency Department (ED) on 29 September 2015 with shortness of breath and atrial fibrillation.

2. ED consultant Dr B performed a point-of-care echocardiographic examination, which he interpreted as "relatively poor left ventricular contractions" and documented as "relatively poor squeeze". Later that night, Ms A was admitted to the high dependency ward.

3. At 9.37am on 30 September 2015, Ms A was discharged home with a prescription for anticoagulant medication. No future hospital appointments were made for either an echocardiograph or cardiology follow-up.

4. At 11.40pm on 10 November 2015, Ms A was admitted to the ED via ambulance, with an elevated pulse rate of 160bpm.

5. House officer Dr C reviewed Ms A later that night, and after speaking with the on-call consultant physician and cardiologist, Dr E, Ms A was administered flecainide.

6. At 1.35am on 11 November 2015, Ms A suffered a flecainide-induced cardiac arrest. Following a successful resuscitation procedure, Ms A was transferred to a main centre hospital (DHB2).

7. On 17 November 2015, the anticoagulant medication that Ms A had been prescribed at Wairarapa DHB was stopped to enable an angiogram to be performed.

8. On 20 November 2015, Ms A was discharged home by house officer Dr H, but her anticoagulant medication was not restarted.

Findings

9. Wairarapa DHB was found to have breached Right 4(1) of the Code for the following reasons:

   a) There was no record of a full cardiac history and examination having been undertaken on 30 September 2015 while Ms A was in the high dependency ward, and nor was a follow-up echocardiogram arranged, and those responsible did not pick up on Dr B's previous ED assessment of Ms A's cardiac function.

   b) Documentation regarding a cardiac history having been taken was inadequate.

   c) On 10–11 November 2015, key information in Ms A's past ED discharge summary was not received by Dr E, and so was not considered by her when prescribing flecainide, which was contraindicated in Ms A's situation.

10. Adverse comment was made in relation to DHB2 not restarting Ms A's anticoagulant medication when she was discharged on 20 November 2015.

Recommendations

11. It was recommended that Wairarapa DHB report to HDC with evidence that (a) the recommendations set out in its Event Investigation Report have been implemented, and any further changes that occurred following the implementation of those recommendations; and (b) it has taken steps to establish a comprehensive electronic record system, with details of any effect this has had on Wairarapa DHB's services.

12. It was recommended that DHB2 report to HDC with evidence of the workgroup it established, and its electronic discharge summary form, and how this has improved the discharge summary process.

Complaint and investigation

13. The Commissioner received a complaint from Ms A about the services provided to her by Wairarapa District Health Board (DHB) and DHB2. The following issues were identified for investigation:

- *Whether Wairarapa District Health Board provided Ms A with an appropriate standard of care between September 2015 and November 2015.*
- *Whether DHB2 provided Ms A with an appropriate standard of care in November 2015.*

14. The parties directly involved in the investigation were:

Ms A	Consumer
Wairarapa DHB	Provider
DHB2	Provider

Also mentioned in this report:

Dr B	ED consultant
Dr C	House officer
Dr D	Consultant physician
Dr E	Physician and cardiologist
Dr F	House officer
Dr G	Senior medical officer
Dr H	House officer

15. Independent expert advice was obtained from a cardiologist, Dr Clyde Wade, and is included as **Appendix A.**

Information gathered during investigation

29–30 September 2015 — care provided at Wairarapa DHB

16. At the time of these events, Ms A was 42 years old and had been diagnosed with Graves' disease, an autoimmune disorder that causes hyperthyroidism.[1] Her regular medication included carbimazole for thyroid control.

17. On 29 September 2015, Ms A was referred to Wairarapa DHB ED by her regular general practitioner, who requested an urgent assessment of Ms A owing to her shortness of breath and atrial fibrillation.[2]

18. At 4pm, Ms A was triaged in the ED, and at 4.06pm an ECG[3] was undertaken. She was treated with intravenous metoprolol, which improved her heart rate and lowered her blood pressure. Emergency consultant Dr B performed a point-of-care[4] echocardiographic[5] examination, which he interpreted as "relatively poor left ventricular contractions". Ms A also had a chest X-ray, which Dr B felt suggested "congestive failure".

19. Dr B completed the ED discharge summary on 29 September 2015 and recorded:

> "**Doctor Notes** … [chest X-Ray] ed read cardiomegaly plethora … ed echo; relatively poor squeeze … bnp[6] 454 … **Discharge Diagnoses** … Primary Diagnosis … Atrial Fibrillation … Secondary Diagnoses … thyroid CMO[7]/CHF[8]? … thyrotoxicosis.[9]"

20. At 10.30pm, Ms A was admitted to the high dependency ward.

21. At 6.14am on 30 September 2015, a second ECG was recorded. Later that morning, Ms A was reviewed by consultant physician Dr D and house officer Dr F. Dr F completed the documentation and recorded:

> "[Observations] stable afebrile [heart rate] 111 [atrial fibrillation] … [impression] — well on [medications] for [atrial fibrillation] and Graves [disease].[10] … Plan — [discharge] home … Metoprolol 47.5mg [twice daily] … GP next week."

[1] The overproduction of thyroid hormones.
[2] An irregular, often rapid heart rate that commonly causes poor blood flow.
[3] Electrocardiogram — a test that measures the electrical activity of the heart to detect abnormalities.
[4] Taken at the time of the consultation with quick availability of results to make immediate and informed decisions about patient care.
[5] A test that uses high frequency sound waves to examine the structure and functioning of the heart.
[6] Brain natriuretic peptide.
[7] Cardiomyopathy — any of several structural or functional diseases of heart muscle.
[8] Congestive heart failure.
[9] An excess of thyroid hormone in the body.
[10] An immune system disorder of the thyroid.

22. At 9.37am on 30 September 2015, Ms A was discharged home with a prescription for dabigatran.[11] No future hospital appointments were made for either an echocardiograph or cardiology follow-up.

23. At 6.04pm on 30 September 2015, Ms A remained unwell and was readmitted to the ED. Ms A was reviewed by an emergency consultant, who felt that nothing had changed from earlier that day and discharged Ms A home with a plan to adhere to the earlier discharge plan.

Further information relating to care provided on 29 and 30 September 2015

24. Dr B noted in Ms A's ED discharge summary that her BNP level was elevated, but there is no record that Dr F or Dr D discussed the potential significance of this finding.

25. Dr F told HDC that he cannot recall his interaction with Ms A. However, he stated:

> "… I cannot recall what documentation was reviewed as part of the assessment. From my knowledge of the systems, it is likely we would have had access to the admission note through the computer based notes, and paper notes from the current admission. … I cannot comment on my synthesis of the ED echo report by [Dr B] as I do not remember writing the ward round note or discharge summary now two years later. Generally speaking I would bring any details up with my consultant or registrar if I thought they hadn't been considered."

26. Dr F further advised:

> "With regards to the brevity of the ward round note, though I do not remember this [interaction], it would be very uncharacteristic of me to leave out details such as history taking and examination had they occurred. It is possible that further details of the case were known to [Dr D] but were not communicated to me at the time of the ward round and therefore not recorded."

27. Since the events, Dr D has left New Zealand and, despite attempts, neither Wairarapa DHB nor HDC have been able to contact him.

28. Wairarapa DHB told HDC:

> "It appears from our understanding of events that the main failure was that [Dr D] did not appear to pick up on [Dr B's] assessment of [Ms A's] cardiac function."

29. Wairarapa DHB further stated:

> "Since this event there has been an ongoing process whereby the clinical leads have been encouraged to remind members of their department and our junior medical staff to review and record significant events in the patients' case chart and for these to be reviewed on each occasion the patient is seen. It is felt that a less formal approach

[11] An anticoagulant — medication that hinders the clotting of blood.

such as this will result in better adherence than email or hard copy reminders which are often not followed through."

10–11 November 2015 — care provided at Wairarapa DHB

30. At 11.40pm on 10 November 2015, Ms A was collected from her home by ambulance and admitted to the ED. Nursing notes state:

> "[A]mbulance found [Ms A] on hands [and] knees crawling to door. Took evening meds — fell to floor, [short of breath] [History of] thyroid, [supraventricular tachycardia[12]]. Had bloods this am from GP … States when takes metoprolol for [supraventricular tachycardia] falls to the ground."

31. Nursing staff took Ms A's observations, which showed an elevated pulse rate of 160bpm.[13]

32. House officer Dr C reviewed Ms A. He told HDC that he also reviewed the ambulance notes, the nursing triage note, the ED discharge summary by Dr B, and the more recent hospital discharge from Dr F.

33. Dr C stated:

> "On reviewing [Dr B's] discharge summary there is indeed a comment two thirds of the way down the second page buried noting an informal ECHO which stated 'poor squeeze ? thyroid cmo'. I did not notice this at the time when I reviewed [Dr B's] discharge summary, and in any event, even if I had, the language used was vague and non-descript ('poor squeeze') and I am not sure that I would have understood its full relevance at the time."

34. Dr C told HDC that he took a full clinical history from Ms A:

> "This included a full cardiac history as well as a systems review. Neither [Ms A], nor her daughter who was present provided much detail when I asked about her cardiac history symptoms such as [orthopnoea[14]], PND,[15] or ankle swelling. Because [Ms A] had not mentioned too much in her clinical history regarding the cardiac symptoms, I examined her for signs such as fluid overload, looking at her JVP[16] and the presence of pitting [oedema]. She did not have any pitting [oedema] and her JVP was 2–3cm as documented in my notes."

35. Dr C stated:

> "I feel that the notes that I made of [Ms A's] presentation are in general, quite detailed. I have recorded several details of a cardiac history such as 'palpitations',

[12] An abnormally fast heart rhythm arising from improper electrical activity in the upper part of the heart.
[13] Beats per minute.
[14] Difficulty in breathing that occurs when lying down.
[15] Paroxysmal nocturnal dyspnoea — attacks of severe shortness of breath and coughing that occur at night.
[16] Jugular venous pressure.

> 'intermittent shortness of breath on exertion' and 'no chest pain' … I have negatived a number of other symptoms but [it] is correct that I have not negatived orthopnoea, nocturnal dyspnea, ankle swelling, or other cardiac symptoms. … I did ask these questions but was unable to gain much information from either [Ms A] or her daughter about this. I will reflect on how to better document this so that it is more clear in the future."

36. Dr C said that he then called the on-call consultant physician and cardiologist, Dr E. He told HDC: "I mentioned [Ms A's] recent admission with hyperthyroidism secondary to [atrial fibrillation]. I was advised by [Dr E] to give adenosine."

37. At 12.40am, the clinical record states: "[Heart] Rate 80–108."

38. Dr C told HDC that he consulted with his senior, Dr G, and then contacted Dr E for a second time to discuss whether it was clinically indicated to treat Ms A with intravenous flecainide. Adenosine had not been given.

39. Dr C stated:

> "[Dr E] asked if the patient had had a formal ECHO in the past. As I did not know this at the time, I was directed by [Dr E] to the section where previous formal ECHO reports were kept online on Concerto. I remember this very clearly and recall the exact computer where I was sitting at the time. This search confirmed that [Ms A] had not had a formal ECHO. I was then asked by [Dr E] to chart flecainide 150mg IV[17] over 20 minutes."

40. Dr C said that he then discussed the patient with Dr G, who reviewed Ms A. In response to my provisional opinion, Ms A told HDC that although Dr G "popped his head into the cubicle" and may have spoken with Dr C or looked at her notes, she does not consider that she was reviewed by Dr G.

41. Following a new set of observations and indication that Ms A's heart rate had reduced, Dr C called Dr E for a third time. Dr C told HDC:

> "I contacted [Dr E] for a 3rd time because I thought that the reduced heart rate may change [Ms A's] management and she may not require IV flecainide. … I was once again instructed to give flecainide by [Dr E], which was subsequently given."

42. Dr E told HDC:

> "I was called shortly after midnight (early hours of 11 November 2015) by [Dr C], RMO,[18] regarding [Ms A]. I was told that she was a lady in her early 40's, presenting with palpitations and dyspnoea. Initial ECG showed SVT,[19]so I recommended IV

[17] Intravenous.
[18] Resident medical officer.
[19] Supraventricular tachycardia.

> Adenosine. Shortly thereafter I received a further call to say that [Ms A] had gone into atrial fibrillation with a rapid ventricular response rate. I had no reason to suspect structural heart disease in a relatively young woman, so recommended IV Flecainide 150mg over 20 minutes. At that time I was not aware that [Ms A] was thyrotoxic, nor did I know she had a recent presentation to the Emergency Department (29 September 2015) with palpitation. … I am aware that Flecainide is contra-indicated in the context of impaired left ventricular function, so had I been made aware of [Dr B's] assessment I would not have suggested IV Flecainide."

43. Dr E also stated:

> "I do not recall being told that [Ms A] was thyrotoxic. I recommended giving Adenosine initially when she had an SVT and then Flecainide when I was called again to say [Ms A] had developed atrial fibrillation with a rapid ventricular response rate as I had no reason to suspect impaired left ventricular function."

44. At 12.50am, Ms A was administered flecainide. After 1am, Dr G went off duty. At 1.20am, it was recorded that Ms A's blood pressure was down, that she was pale, and that an ECG was to be repeated.

45. At 1.35am, Ms A suffered a cardiac arrest. Dr E and an anaesthetist attended. At 3.51am, nursing staff and the anaesthetist documented that a resuscitation procedure had been successful.

46. Ms A was transferred to DHB2 by air, and initially managed in the Intensive Care Unit (ICU).

Documentation

47. Dr C informed HDC:

> "My normal practice is to write down important pieces of the information I attain from my history/examination/past medical history etc either directly into the notes, or on a piece of scrap paper like a postit note which I subsequently transcribe in its entirety into the notes in a more logically written, and hopefully more legible, factual account. That evening I initially recorded information about [Ms A] on a postit note, and then later transcribed all of this information into the computer in the emergency department at the time stated in my notes. It is unlikely that this postit note has been retained. It is common practice amongst ED doctors to make brief notes which are then transcribed later into the computer record at a more convenient time/location. Furthermore, the acuity of the patient can be such that dealing with an acute situation such as a life threatening arrhythmia takes precedence and documentation is performed retrospectively."

48. Dr C further stated:

> "With regards to the timing of my notes, these were made retrospectively given the acuity and priority of [Ms A's] presentation and the subsequent deterioration in her clinical status."

November 2015 — care provided at DHB2

49. On 11 November 2015, an ICU registrar documented a meeting she had with Ms A's family. She noted: "They give a story of [Ms A] being unwell with [symptoms] of failure ([short of breath], leg swelling, PND, orthopnoea) for some months."

50. On 12 November 2015, Ms A was transferred to the cardiology ward, and on 17 November 2015 the anticoagulant medication[20] she had been prescribed at Wairarapa DHB on 30 September 2015 was stopped to enable an angiogram[21] to be performed.

51. On 20 November 2015, Ms A was discharged home by house officer Dr H. Ms A's anticoagulant medication had not been restarted, nor was there a documented plan for when it should be recommenced.

52. Dr H stated:

> "[T]he failure to record the drug Dabigatran on the discharge summary and prescription was an oversight on my behalf and I apologise whole-heartedly to [Ms A] for the error and the additional risk to her health this posed."

53. DHB2 stated that at the time of these events there were two house officers working in Cardiology. A registrar was also assigned to the ward and available to help the house officers. A consultant was also assigned to the ward, and had overall clinical responsibility. Direct supervision was provided through the "consultant-led ward round", which involved both the registrar and the house officers. The treatment decisions were directed by the consultant.

54. DHB2 told HDC that within Cardiology there was a change in registrar on each Monday morning. In 2015, the consultants' roster changed on Friday mornings. It has now amended the consultants' roster change to a Thursday. This has improved continuity of care, as the consultants have two days to get to know the patients before the weekend.

55. DHB2 also told HDC that in 2015, although there was an agreed process, there was no written policy in place for writing discharge letters. The initial instructions for house officers were provided in their first runs in general medicine. Subsequently, DHB2 changed its process, and now there is a handover document for new house officers in Cardiology.

56. DHB2 further stated:

[20] Dabigatran.
[21] An angiogram is an imaging test that uses X-rays to view the body's blood vessels. The test is used to study narrow, blocked, enlarged, or malformed arteries or veins in many parts of the body.

> "We have trialled an additional sign-off through registrar on the ward with copies then sent to the consultant in charge of the ward. Unfortunately, the current format of the electronic letters does not allow for sign off with multiple persons. We then trialled an initiative to generate an initial version that was sent with the patient and a final version that was sent later. However this led to negative feedback from General Practitioners as they were getting two and sometimes more discharge letters. In order [to] provide more clarity around an organisation-wide system or standards regarding the discharge summary, there has now been the establishment of a workgroup, inclusive of the Information Technology (IT) department."

57. In response to my provisional opinion, and in relation to the workgroup, DHB2 stated:

> "[T]he focus of this group has been on providing patients with clearer, more comprehensive information relating to their admission. In turn it is anticipated that this will improve the quality and accuracy of our discharge summaries."

58. DHB2 told HDC that it considered its discharge service as a result of these events. In respect of how staff now document medication on admission and discharge, DHB2 stated:

> "On the admission of a patient there is a paper form that is used consistently by the admitting physician. It requires the documentation of the medication that the patient is taking on admission. The medication at discharge is derived off the standard New Zealand drug prescription form. In conjunction with the notes this information is then transcribed into the discharge letter. Since the time of this event in 2015 additional drop boxes have been added into the electronic discharge summary whereby the clinician completing the summary fills in Admission Medication, Changes in Medication and Reason, as well as Discharge Medications."

59. In response to my provisional opinion, DHB2 stated that "[t]he cardiology service no longer uses a paper form to record admission medication, instead this is documented electronically". It also told HDC that recently it included community-dispensed medication in its electronic healthcare record, which is expected to assist with the reconciliation of medication.

Further information

Wairarapa DHB

60. Wairarapa DHB told HDC that it has no policies relating to clinical examinations, investigations, documentation, or echocardiograms and atrial fibrillation. Wairarapa DHB stated:

> "Clinical practice and management are not normally described within the DHB policies which are much more directed towards the organisation and rules for the DHB. Clinical practice relies on regional, national and international guidelines for best practice and these are summarised in the clinical pathways program which is based on the guideline template created by the Canterbury DHB some years ago. These

pathways follow accepted best practice for the clinical management of different conditions."

61. In respect of staffing levels on 10 and 11 November 2015, Wairarapa DHB told HDC:

> "As is normally the case from 11 PM until 8 AM there are two junior doctors on duty within the hospital covering both the emergency department and the wards. The workload of this shift is usually light. These two doctors are fully supported by a range of consultants on immediate call including consultants in medicine, surgery, paediatrics, obstetrics, orthopaedics, and anaesthetics. These consultants are available immediately by telephone and within a very short timeframe in person should their presence be requested. … There would have been a full range of consultants available immediately by phone and in [a] short time in person if required to [Dr C]. [Dr E] was the consultant physician on duty that night."

62. Wairarapa DHB also told HDC:

> "Clear concise transfer of information about patients is an integral part of medical practice and one which junior doctors learn from an early stage in their careers. Consultants work during the day with the Junior RMOs on the ward. During ward rounds, Junior RMOs are expected to present patients in a clear concise and complete manner. Consultants therefore acquire first-hand knowledge about individual RMOs' communication skills and are able to supply instruction and feedback as required. Consultants are therefore completely entitled to rely on this information relayed to them by telephone at night."

63. Wairarapa DHB stated:

> "[Dr C] is a Junior RMO who was working under the supervision of the on-call consultants of that night and had no capacity for independent action. Junior Drs are required to discuss patient care with the consultants at all times. It should also be noted that, whilst there are two RMOs on duty at night, one of these is tasked with covering the wards and hence are not always, or indeed sometimes often physically in the ED. Therefore on the night in question [Dr C] would have had to perform a rapid clinical assessment of a sick patient, look at the computer file and communicate with the consultant on call."

64. Wairarapa DHB further stated:

> "It is not uncommon, when the department is busy and a major illness or resuscitation is in progress, for the computer record to be completed after the event has settled. This sometimes may be a number of hours. Often information is recorded on the whiteboard (for example during a resuscitation) and then the computer record is created from this once the resuscitation is complete. If a doctor maintains a written note contemporaneously during an event, then it is unlikely that these notes would be kept once the information was transcribed on to the computer system."

65. As a result of its Event Investigation Report completed following these events, Wairarapa DHB told HDC:

a) It will carry out ongoing review of clinical notes taken by its staff to ensure that "thorough focused clinical assessment/examination and detailed recording of findings in the clinical records" are occurring.

b) Medical staff will receive regular education "to be made aware of the importance of reading previous notes and results".

c) It will undergo regular review of case notes to ensure that significant clinical findings are emphasised in the clinical record.

d) Education has been provided to the RMO staff regarding clear communication to Senior Medical Officer (SMO) staff.

66. Wairarapa DHB also told HDC:

> "[W]e can confirm [Ms A] was discussed at the mortality and morbidity group meeting dated 4th of July 2016. As a group we arrived at the following recommendations:
>
> 1) The importance of recognizing the potential toxicity [of] Flecainide.
> 2) That IV Flecainide might exert adverse effects beyond oral use.
> 3) That Flecainide should not be used in [a] patient with structural heart disease (e.g. poor [left ventricular] function or ischaemic heart disease.
> 4) Our DHB include lectures on anti-arrhythmic use in Study Day and ACLS[22] training modules.
> 5) Remind our colleagues of the NZ formulary data base regarding Flecainide contra-indications"

67. Wairarapa DHB advised that its old IT system and the hybrid system of medical records (part paper, part electronic) are in the process of being addressed through its investment in the regional IT upgrade. It acknowledged that a comprehensive, functioning electronic system is a necessity for Wairarapa DHB.

Dr C

68. Dr C told HDC:

> "As a junior doctor in the Wairarapa [DHB], I escalated care of [Ms A] at each stage to consultant level every time that I felt there had been a change in her condition, when I thought management of her condition may potentially change, and when my senior colleagues directed me."

[22] Advanced cardiac life support.

Responses to provisional opinion

69. Ms A, Wairarapa DHB, and DHB2 were given the opportunity to respond to relevant sections of my provisional opinion. Their responses are outlined below.

70. Ms A accepted that the "information gathered" section of the report accurately represented the events of her care at both hospitals, and other comments have been added to the report where relevant.

71. DHB2 accepted the adverse comment, and other comments have been added to the report where relevant.

72. Wairarapa DHB accepted the provisional opinion and proposed courses of action.

Opinion: Wairarapa DHB — breach

30 September 2015

73. On the morning of 30 September 2015, Ms A was reviewed by consultant physician Dr D and house officer Dr F. Dr F completed the documentation and recorded:

> "[Observations] stable afebrile [heart rate] 111 [atrial fibrillation] … [impression] — well on [medications] for [atrial fibrillation] and Graves [disease]. … Plan — [discharge] home … Metoprolol 47.5mg [twice daily] … GP next week."

74. At 9.37am on 30 September 2015, Ms A was discharged home. No future hospital appointments were made for either echocardiography or a cardiology follow-up.

75. In relation to the care provided by Dr D and Dr F, my independent expert advisor, cardiologist Dr Clyde Wade, stated:

> "When [Ms A] was reviewed by [Dr D] and [Dr F] on the ward round the following morning, there is no record in [Dr F's] notes of a full cardiac history or a cardiac examination. Similarly, there is no reference to [Ms A's] ECG [23] (which showed poor [R-wave] progression consistent with left ventricular damage), her [chest X-ray] (which showed a large heart — allowance needed to be made for a sitting film, but a cardiothoracic ratio of 62% might have raised suspicions of true cardiomegaly), or any of [Dr B's] findings.[24] The significance or otherwise of [Ms A's] elevated blood BNP level was not discussed. (BNP is elevated in heart failure but might be modestly elevated in atrial fibrillation)."

[23] Taken 29 and 30 September 2015.
[24] See paragraphs 18–19 above.

76. Dr Wade further advised:

> "House Officer notes do not necessarily document everything that happens on the ward round, so it is possible that some of the above actions may well have taken place. If they had not taken place, then that would be a severe departure from accepted practice ..."

77. Dr F told HDC that it would be "uncharacteristic" of him not to record "details such as history taking and examination had they occurred". However, in this case he is unable to provide any further recollection of events.

78. The notes recorded by Dr F make no reference to Dr B's findings in the discharge summary.

79. Dr Wade stated that it is clear that the notes from Dr B's discharge summary were either not reviewed by Dr F or Dr D at the time of assessment, or were misinterpreted. Dr Wade further advised, however, that Dr F, as the junior house officer, might not be expected to fully appreciate the significance of the term "thyroid CMO?" as detailed in Dr B's report.

80. Dr Wade advised:

> "The European Society of Cardiology Guidelines (2010) include transthoracic echocardiography as part of the minimum evaluation for patients with atrial fibrillation. [Dr B] in ED did carry out an informal echocardiograph. Such an examination would not be considered diagnostic, but did raise concerns in [Dr B's] mind about [Ms A's] left ventricular function. A formal echocardiograph performed on [Ms A] would have demonstrated her critical left ventricular impairment and also ruled out significant organic valve disease, especially rheumatic heart disease (important in [a woman of this ethnicity]). It is accepted that echocardiography in the presence of rapid atrial fibrillation may not give an accurate picture of left ventricular function, so awaiting better heart rate control is acceptable. There is no evidence that echocardiography was considered by [Dr D] with or without the issue of heart rate control. Failure to arrange an echocardiograph in a patient [with] atrial fibrillation in whom thyroid cardiomyopathy is a clinical possibility would be regarded as a moderate departure from accepted practice."

81. Wairarapa DHB informed HDC:

> "It appears from our understanding of events that the main failure was that [Dr D] did not appear to pick up on [Dr B's] assessment of [Ms A's] cardiac function."

82. Since the events, Dr D has left New Zealand, and neither Wairarapa DHB nor HDC have been able to contact him for a response.

83. I am conscious of the fact that Dr F cannot recall his interaction with Ms A. The investigation of this complaint has also been affected by Dr D's relocation from New Zealand and the inability to ascertain his recollection of events.

84. I am concerned that, as noted by Dr Wade, the medical notes indicate that Dr B's discharge summary was either not reviewed or was misinterpreted (or, indeed, was reviewed inadequately).

85. Dr F's and Dr D's notes contain no documentation of Dr B's findings, or of a full cardiac history or full cardiac examination having been undertaken. Either a full cardiac history and examination did not occur or, if they did, this information was not documented. If they did not occur, this is a severe departure, as crucial information about Ms A's clinical picture was not obtained. If they did occur and were not documented, then that information was not available to any person subsequently caring for Ms A, creating a gap in their knowledge and understanding of her condition. Both situations involve significant omissions.

86. Further, it is clear that an echocardiogram should have been ordered based on Ms A's condition, as recorded by Dr B, but this did not occur. Without a response from Dr D and his recollection of why an echocardiogram was not ordered, I am unable to assess the adequacy of his individual actions accurately. However, I am very concerned that this did not occur.

87. In summary, as outlined above, appropriate actions in relation to Ms A's care were not undertaken, and Ms A was discharged home without appropriate echocardiography or cardiology follow-up. I am critical that material information available to Dr D and Dr F in the discharge summary was not acted on appropriately during Ms A's presentation.

88. I note that as a result of the Event Investigation Report completed following these events, Wairarapa DHB is reviewing the clinical notes taken by its staff to ensure that "thorough focused clinical assessment/examination and detailed recording of findings in the clinical records" are occurring.

10 and 11 November 2015

Cardiac history

89. At 11.40pm on 10 November 2015, Ms A was collected from her home by ambulance and taken to the Wairarapa DHB ED. Dr C told HDC that he took a detailed cardiac history, but was unable to elicit particular information from Ms A (including the presence of orthopnoea, PND, or ankle swelling), and did not document this. Dr C said that he reviewed the ambulance notes, the nursing triage note, the ED discharge summary by Dr B, and the more recent hospital discharge from Dr F.

90. Dr Wade advised:

> "Whether [Dr C] or his senior [Dr G] (or indeed any of [Ms A's] other medical attendants in the preceding 2 weeks) had enquired after such matters as orthopnoea, nocturnal dyspnoea or ankle swelling, or whether [Ms A] was rather reticent about her symptoms is unclear. Certainly there is no documentation of these questions being asked, or of the replies."

91. In Dr Wade's opinion, the failure to take a detailed cardiac history would be regarded as a mild departure from appropriate practice.

92. I am concerned that Dr C did not record that he had been unable to obtain particular information. I note that Dr C has reflected on how he can improve his documentation of patient interactions and the information obtained.

Review of previous documentation

93. Dr Wade advised:

> "If indeed [Dr C] or [Dr G] had not reviewed a summary of [Ms A's] recent admission for the same condition, this would be regarded as a serious departure from accepted practice and would be viewed poorly by peers."

94. I note that Dr C stated that he did review a summary of Ms A's previous admission, but omitted to notice the comment regarding a previous echocardiogram. Dr C also stated that Dr E asked him whether a "formal" echocardiogram had been carried out, and he did not mention the point-of-care echocardiogram carried out by Dr B.

95. I am concerned that Dr C failed to notice and recognise the importance of this information, but accept that he reviewed the discharge summary, and I also note the level of his experience at the time of events.

Prescription of flecainide

96. Dr C contacted Dr E a number of times regarding Ms A's presentation, the outcome of which was that Dr E recommended administering flecainide. There are differing accounts between Dr C and Dr E as to the information shared in the telephone calls.

97. Dr E stated that she was not aware that Ms A was thyrotoxic, and also did not know that Ms A had had a recent presentation to ED with palpitation. Dr E told HDC that had she been made aware of Dr B's assessment, she would not have suggested intravenous flecainide, as it is "contra-indicated in the context of impaired left ventricular function".

98. In contrast, Dr C stated that he informed Dr E that Ms A had had a recent admission with atrial fibrillation secondary to hyperthyroidism. He said that Dr E directed him to the relevant part of the record system to discover only whether a "formal" echocardiogram had occurred.

99. Dr Wade advised:

> "Flecainide is recognised as being pro-arrhythmic ie has the propensity to cause life threatening ventricular arrhythmias, particularly in patients with impaired left ventricular function …
>
> Flecainide is … generally regarded as contraindicated in structural heart disease. … When asked for permission to use a drug like Flecainide it would be common practice

> to enquire after possible contraindications. Failure to do so would be regarded as a moderate departure from accepted practice and meet with moderate disapproval from peers. As nobody (apart from [Dr B]) understood the severity of [Ms A's] condition, this information was never going to be conveyed to [Dr E], even had she asked, so her decision to recommend Flecainide was reasonable under the circumstances."

100. Dr C and Dr E have differing recollections of the information shared regarding Ms A's condition, and I am unable to make a factual finding as to the exact information shared. However, it is clear that some information about Ms A's presentation was communicated to Dr E.

101. Dr Wade advised that it would be common practice to enquire after possible contraindications when prescribing flecainide, and that "as nobody (apart from Dr B) understood the severity of [Ms A's] condition, this information was never going to be conveyed to [Dr E], even had she asked, so her decision to recommend flecainide was reasonable under the circumstances". I note that Dr E enquired about whether a formal echocardiogram had been done, and told Dr C how to find the information in the computer system. While I am not critical of her actions, I encourage Dr E to consider the best ways of eliciting information from junior doctors when providing direction on clinical management over the telephone.

102. The DHB had the information necessary for the provision of appropriate care, but this information was not conveyed to the relevant people. I am critical that material information was not received by the appropriate person, and am concerned that as a result, flecainide was administered despite it being contraindicated.

103. I note that since Wairarapa DHB's investigation into these events, education has been provided to RMOs regarding clear communication to SMOs.

Documentation

104. Dr C wrote his initial notes by hand onto a piece of paper, and then transcribed the notes into the electronic record some time later. He said that this was because of "the acuity and priority of [Ms A's] presentation and the subsequent deterioration in her clinical status".

105. Dr Wade advised that "the lack of contemporaneous notes is a vexed issue". He said:

> "In the absence of a bedside device, medical staff have the option, when reviewing a patient, of making handwritten notes that are then transcribed into the electronic record in the form of a summary, or simply examining the patient, then sitting down at a terminal and entering the notes directly into the electronic record."

106. Dr Wade advised that the problem with the latter approach is that interruptions can occur, which lead the clinician to enter the notes at a later stage. He advised: "This would appear to have been the situation in [Ms A's] case as no medical notes were made in the period between admission and her collapse."

107. Wairarapa DHB told HDC:

> "It is not uncommon, when the department is busy and a major illness or resuscitation is in progress, for the computer record to be completed after the event has settled. This sometimes may be a number of hours. Often information is recorded on the whiteboard (for example during a resuscitation) and then the computer record is created from this once the resuscitation is complete. If a doctor maintains a written note contemporaneously during an event, then it is unlikely that these notes would be kept once the information was transcribed on to the computer system."

108. Dr Wade noted that currently there is a lengthy transition in all DHBs between a written clinical record and a fully electronic system. I note that Wairarapa DHB has stated:

> "The old IT system and the hybrid system of medical records (part paper part electronic) are being addressed by significant investment that the DHB has made in the regional IT upgrade … A comprehensive and functional electronic record system is a necessity for this DHB and this has been recognised and is being addressed."

109. Owing to the acuity and priority of Ms A's presentation, Dr C took notes and later transcribed them into the computer system. I am not critical of his failure to enter his notes into the electronic system immediately. However, I note the steps being taken by the DHB to upgrade its systems, and I support these steps.

Conclusion

110. I have a number of concerns about the care provided to Ms A by Wairarapa DHB and its staff, as follows:

1. There is no record of a full cardiac history and examination having been undertaken while Ms A was under the care of the doctors in the high dependency ward.
2. An echocardiogram was not arranged for Ms A while in the high dependency ward, despite the fact that one was indicated.
3. On 30 September 2015, Dr D did not pick up on Dr B's previous ED assessment of Ms A's cardiac function.
4. A junior doctor did not document that he was unsuccessful in ascertaining a full cardiac history from Ms A.
5. On 10–11 November 2015, key information in Ms A's discharge summary was not received by Dr E, and so was not considered by her when prescribing flecainide.

111. Dr Wade advised:

> "Clinical history taking, examination, review of recent discharge summaries and review of the results of recent investigations are fundamental to the practice of medicine. It is clear that in [Ms A's] case some, if not all, of these steps cannot have taken place at various times during her admissions to [Wairarapa DHB]. With the

notable exception of [Dr B], the net result was that the overall standard of medical care delivered to [Ms A] up to the point of her cardiac arrest was poor and below that expected in a New Zealand Public Hospital."

112. Wairarapa DHB is responsible for the services it provides, and I am critical that opportunities to act appropriately on clinical information clearly available about Ms A were missed.

113. It follows that I find that Wairarapa DHB failed to provide Ms A with an appropriate standard of care, and therefore that it breached Right 4(1) of the Code of Health and Disability Services Consumers' Rights.[25]

114. Wairarapa DHB carried out an investigation into the care provided to Ms A, and has since completed the following actions and agreed upon the following recommendations to reduce the risk of events of this kind happening again in the future:

1. There is an ongoing process whereby clinical leads are being encouraged to remind their junior staff members to record and review significant events in patients' case charts, and for these to be reviewed every time the patient is seen.
2. Training has been provided for RMOs in clear communication to SMOs.
3. Staff are to be reminded of the NZ formulary database regarding contraindications to the use of flecainide.
4. Case notes are being reviewed to ensure that significant clinical findings are emphasised in the clinical record.
5. Medical staff are to receive regular education on the importance of reading previous notes and results.

115. Wairarapa DHB also told HDC that its old IT system and its system of medical records are being addressed by significant investment made by the DHB in the regional IT upgrade. I support these steps.

Opinion: DHB2 — adverse comment

116. Ms A had been prescribed dabigatran in the Cardiology ward. This medication was ceased by house officer Dr H so that an angiogram could be undertaken. Dabigatran was not restarted by DHB2 staff following this.

117. DHB2 stated that in 2015, discharge letters were not routinely supervised by registrars or consultants. The DHB told HDC that since that time it has trialled two systems to try to manage the discharge process better, but that these trials have been unsuccessful, and it

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

has now established a workgroup, which it anticipates will improve the quality and accuracy of its discharge summaries.

118. Dr Wade advised:

> "Anticoagulant treatment is recommended in patients with atrial fibrillation and additional risk factors that increase the likelihood of stroke. The risk of stroke in atrial fibrillation and the consequent need for anticoagulation are recommended to be calculated using the CHA2DS2-VASc[26] score … [Ms A's] score was 2 out of a maximum possible score of 9. Patients with scores of 2 or more are recommended for anticoagulation in the absence of contraindications. Failure to institute anticoagulant therapy in [Ms A's] case would be a moderate departure from accepted practice and would not be well regarded by peers."

119. DHB2 accepted that the failure to restart anticoagulation medication for Ms A was an omission and a "regrettable mistake". Dr H told HDC: "Details about restarting dabigatran were not included on the discharge paperwork which I agree was an oversight by me." I am critical that it was not identified by any staff at DHB2 that this medication needed to be restarted. However, I am mindful of Dr Wade's observations:

> "[Ms A] was anxious to go home, she was discharged before the paper work was complete and her prescription was faxed to her pharmacy. Had there been an opportunity to sit down with [Ms A] and go over the prescription with her before discharge, it is possible that the omission might have been noted either by [Ms A] or the discharging staff."

120. Dr Wade advised that there were no issues with the care provided prior to discharge on 30 November 2015.

121. I note that DHB2 advised that following these events it commenced a new discharge service, with the result that staff now document electronically all medication on admission. DHB2 told HDC that its electronic discharge summary also now contains drop boxes to display "Admission Medication", "Changes in Medication and Reason", and "Discharge Medications". I support these changes.

122. In light of the changes proposed by DHB2, and of Dr H's level of experience as a house officer at the time of events, I consider that an educational approach is appropriate in this instance. I note that Dr H has accepted his error and has reflected and expressed remorse for it. I also note that DHB2 is trialling changes (outlined above) to minimise the risk of this error occurring again in the future.

[26] European Society of Cardiology 2012 and ACC/AHA Task Force on Practice Guidelines 2014.

Recommendations

123. I recommend that Wairarapa DHB:

a) Provide evidence, within six months of the date of this report, that the recommendations set out in the Wairarapa DHB Event Investigation Report have been implemented, and report on any further changes that occurred following the implementation of those recommendations.

b) Provide evidence of the steps taken to establish a comprehensive and functional electronic record system, and any effect this has had on Wairarapa DHB's services. This should be sent to HDC within six months of the date of this report.

124. I recommend that DHB2 provide evidence of the workgroup established, and of the electronic discharge summary form, and report to HDC any results of how these initiatives have improved the discharge summary process, within three months of the date of this report.

125. In the provisional opinion, it was recommended that DHB2 provide evidence of the paper form used to document medication on admission. In response to that recommendation, DHB2 told HDC that it no longer uses a paper form to record admission medication, and instead documents this electronically.

Follow-up action

126. A copy of this report with details identifying the parties removed, except the expert who advised on this case and Wairarapa DHB, will be sent to Technical Advisory Services and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A: Independent advice to the Commissioner

The following expert advice was obtained from Cardiologist Dr Clyde Wade:

"I have been asked by the Commissioner to provide an opinion on case number C16HDC00984. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors. My qualifications are MBCHB (Otago 1972) FRACP (1979). I have held New Zealand Vocational Registration in Internal Medicine since 1982. I practised Cardiology full time at Waikato Hospital from 1982 until Sept 2015. Since then I have had a part time consulting practice. I hold Emeritus Consultant Physician status at Waikato District Health Board. I am not aware of any personal or professional conflicts in this case.

I received the following instructions from the Commissioner:

Please review the enclosed documents and advise whether you consider the care provided to [Ms A] by Wairarapa [DHB] and [DHB2] were reasonable in the circumstances, and why. In particular, please comment on:

1. [Dr E's] decision to administer [Ms A] Flecainide. In particular, do you consider that she should have considered whether flecainide was contraindicated?
2. The decision to discharge [Ms A] from [DHB2] without anticoagulants; and
3. Any further comment you may wish to make.

For each question, please advise:

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

I have reviewed the following documentation provided by the Commissioner:

1. Letter of complaint dated […]
2. Wairarapa District Health Board's response dated 16 August 2016
3. [DHB2's] responses dated 17 August 2016 and 18 August 2016
4. Clinical records from Wairarapa District Health Board covering the period 29 September 2015–11 November 2015
5. Clinical records from [DHB2] covering the period 11 November 2015–20 November 2015

6. Additional hand written notes for 10/11 November 2015 from Wairarapa District Health Board

SUMMARY OF EVENTS:

[Ms A], [a 42 year old] was referred to the emergency Dept at Wairarapa Hospital by [her GP] on 29 Sept 2015. [The GP] asked for an urgent assessment of [Ms A's] Shortness of Breath and Atrial Fibrillation — probably secondary to hyperthyroidism.

[Ms A] was triaged by ED at 1600 hrs and an ECG was recorded at 1606 hrs.

A typed ED discharge summary written by [Dr B] notes relapsed Graves' disease, increased respiratory rate and atrial fibrillation with a rapid ventricular response. [Dr B's] summary includes the comments:

note: cxr ed read cardiomegaly plethora

ed echo; relatively poor squeeze jvp angle jaw — thyroid CMO?

Tsh <0.02 FT 33.6

bnp 454

[Ms A] was treated with IV Metoprolol with improvement in heart rate albeit with a temporary fall in blood pressure. She was transferred to the care of the admitting team at 1806 hrs.

The bottom of the discharge summary contains the following:

Discharge Diagnosis
Primary Diagnosis
— [G5730] Atrial Fibrillation (AF)
Secondary Diagnoses
— thyroid CMO/CHF?
— thyrotoxicosis

On the ward a second ECG was recorded at 0614 hrs 30 Sept 2105.

Later that morning [Ms A] was reviewed by the Consultant, [Dr D] with notes made by House Officer [Dr F] as follows:

Graves disease 10 yrs
Symptoms of sweating, weight loss
Didn't want to lose thyroid/have radiate
On carbimazole 7 years
On carbimazole, metoprolol, dabigatran
Obs stable afebrile HR 111 AF
Imp — well on meds for AF and Graves.
Plan — D/C home

Metoprolol 47.5mg BD
GP next week.

[Ms A] was discharged at 09:37 hrs on 30 Sept 2015. The discharge summary to [Ms A's] GP was written by [Dr F] and listed the following;

Diagnoses:
Atrial Fibrillation secondary to Hyperthyroidism
Secondary Diagnoses:
Known Graves disease [hyperthyroidism] on Carbimazole
Non-compliant with medications
Problem list:
Known Graves disease diagnosed 2007
Treatment with carbimazole — non compliant recently
Migraine
Discharge Medications
Dabigatran, 150mg bd po
Metoprolol, 47.5mg bd po
Carbimazole, 10mg tds po
GP Instructions:
Please follow up metoprolol dosing for this patient with regards their rate control

Two thirds of the way down the second page of the Discharge Summary [Dr B's] observations were reproduced:

ed echo; relatively poor squeeze jvp angle jaw — thyroid CMO?

No future hospital appointments were made in relation to her thyroid and cardiac issues.

[Ms A] was readmitted to ED at 18:04 the same evening where she was reviewed by [a consultant] who felt nothing had changed from earlier in the day and [Ms A] was discharged to continue with the discharge plan.

At 2340 hours on 10 Nov 2015 [Ms A] was brought into the Wairarapa ED by ambulance. She suffered a cardiac arrest at 0135 hrs on 11 Nov.

The only hand written notes from prior to [Ms A's] arrest are in the ED Nurse Documentation Sheet which recorded the following:

BIBA — when ambulance found [Ms A] on hands and knees crawling to door. Took evening meds — fell to floor, SOB+. Hx thyroid, SVT. Had bloods this am from GP. 800 mis N/S administered by amb. States when takes metoprolol for SVT falls to ground.

> Observations: Wt 65kg T 37.1, Pulse 160, BP110/78, Resp 26, SpO2 on 3L 02 97%, GCS 15, Pain 0/10.
>
> 0040 Hrs: Rate 80–108 [Dr C] re-contacted [Dr E] re Flecainide IV
>
> 0050 Hrs: IV Flecainide as per chart. [Ms A] appears more relaxed — family in attendance
>
> 0120 Hrs BP,I, 48/49 — Pale IV N/Saline bolus 500m1. Nil chest pain discomfort — Alert —Nauseated Rpt ECG
>
> 0135 Hrs Became SOB 02 Hi Flow via non rebreathing — Arrest call. [Ms A developed asystole]

[Dr E], Consultant Physician and [the] anaesthetist attended forthwith.

Further hand written notes by two different nurses and [the anaesthetist] were written in retrospect from 0330 hrs and detail the successful resuscitation process.

Typed notes as part of the ED Discharge Summary show a note written in retrospect at 0351 Hrs by [Dr C].

[Dr C] outlined the issues covered in the nursing notes and stated that [Ms A's] shortness of breath had improved significantly since being given fluids and she was talking in full sentences on arrival in ED. [Dr C] also outlined [Ms A's] intermittent use of her medications.

Verbatim notes as follows:

> Slight unwellness in past week with some intermittent shortness of breath on exertion
>
> No chest pain
> No fevers/chills/rigors
> No abdominal pain
> No nausea/vomiting
> Bowels normal
> History discussed with ED SMO [Dr G] as was still present in ED
>
> Medical history
> Graves — previous admission to hospital with AF secondary to hyperthyroidism. Does not take her medications regularly
>
> Medications: Propranolol 40mg, Metoprolol 47.5mg, Dabigatran 150mg bd, Carbimazole 10 mg tds, Diltiazem 30mg daily. NKDA
>
> 0/E
>
> Temp 37.1, 160bpm, bp 118/78, rr 20–26, 97% room air 0/10 pain
> Talking full sentences. Anxious++, alert and active. No cyanosis. JVP 2–3cm

> Chest clear equal and bilateral air entry no wheeze. No crackles. No pitting oedema
> Dual heart sounds. Irregular. No murmurs.
> Abdomen SNT
>
> Time line of events:
>
> ECG-SVT
> CXR Ordered. No formal echo
> Initial phone call to [Dr E] (Cardiologist) regarding patient when in SVT — to give adenosine. By the time adenosine had been drawn up the ECG had changed to AF fluctuating around 150bpm
> Further phone call to [Dr E] regarding change to AF — to give 150mg IV
> Flecainide, over 20 minutes.
> Sustaining good Blood pressure well at this point in time.
> Serial ECGs and Patient reviewed by ED SMO [Dr G] briefly as well as present in ed to just after 0100.
> Chest clear — no crackles/wheezes. Dual heart sounds.
> Flecainide given 0050 11/11/15
>
> ED SMO [Dr G] left ed around 0110 11/11/15. Patient still having Flecainide.
>
> Patient's blood pressure dropped to 68/45 post flecainide and became short of breath. Fluid bolus 500ml immediately given. Immediate phone call to [Dr E] — stated to give fluids — stated fluids running already. Patient went into asystole Chest compressions immediately started. Immediate phone call to [Dr E] and [anaesthetist] — 0144

The notes went on to detail the resuscitation process.

[Dr E] also wrote a note outlining the resuscitation.

[Ms A] was then transferred by air to [DHB2] where she was initially managed in the ICU. Of particular note is the family meeting that took place in the ICU on 11 Nov. The [ICU registrar] notes:

> They give a story of [Ms A] being unwell with symptoms of failure (shortness of breath, leg swelling, nocturnal dyspnoea, orthopnoea for some months. They report that she had a viral-type fluey febrile illness 2 months ago after which symptoms of failure worsened.

After two days in ICU [Ms A] was transferred to the cardiology service.

The discharge summary from ICU contained the comment: 'can be switched from therapeutic Clexane to Dabigatran'. The Clexane was stopped and Dabigatran commenced on 14 Nov. The last dose of dabigatran was given on the morning of 17 Nov. A note made by [Dr H] on 17 Nov states

> 'stop Dabigatran (angio)'

[Ms A] made a full recovery from her hypoxic brain injury and treatment in the Cardiology service was aimed at confirming the diagnosis of a non-ischaemic cardiomyopathy, establishing a plan for managing her hyperthyroidism, and optimising treatment for her heart rate and severe cardiomyopathy.

Echo cardiographs showed severe biventricular dysfunction with the left ventricular ejection fraction estimated at 15%. There was severe tricuspid and mitral regurgitation. These findings were supported by an MRI scan. The most likely diagnosis was felt to be a non ischaemic cardiomyopathy.

A Coronary angiogram was performed and this confirmed normal coronary arteries.

[Ms A] was discharged home on 20 Nov 2015. As [Ms A] was anxious to go home, arrangements were made for her discharge summary and prescription to be faxed to [the pharmacy].

The discharge summary written by [Dr H] included arrangements for cardiology and endocrinology follow up [at home].

Discharge medication: Carbimazole, Bisoprolol, Cilazapril, Omeprazole and Paracetamol. Dabigatran was not prescribed.

COMMENT:
The seeds of [Ms A's] collapse and cardiac arrest on 11 Nov 2015 were sown at her admission on 29/30 Sept.

[Dr B], in both his ED observations and in the ED Discharge Summary, correctly raised the issue of a possible thyroid CMO (cardiomyopathy) and CHF (Congestive Heart Failure).

When [Ms A] was reviewed By [Dr D] and [Dr F] on the ward round the following morning, there is no record in [Dr F's] notes of a full cardiac history or a cardiac examination. Similarly, there is no reference to [Ms A's] ECG (which showed poor R wave progression consistent with left ventricular damage), her CXR (which showed a large heart — allowance needed to be made for a sitting film, but a cardiothoracic ratio of 62% might have raised suspicions of true cardiomegaly), or any of [Dr B's] findings. The significance or otherwise of [Ms A's] elevated blood BNP level was not discussed. (BNP is elevated in heart failure but might be modestly elevated in atrial fibrillation).

It is accepted that House Officer notes do not necessarily document everything that happens on the ward round, so it is possible that some of the above actions may well have taken place. If they had not taken place, then that would be a severe departure from accepted practice which would be viewed very poorly by peers.

What is clear however, is that [Dr B's] notes either cannot have been reviewed at that time, or were misinterpreted. The notes provided for review by myself were a

combination of typed notes from the electronic clinical record and hand written notes. [Dr B's] notes were typed into the electronic record. It is not possible to say if these notes were available at the bedside for review, either as a printed copy or on computer. [Dr B's] notes were clearly available for [Dr F] to write a discharge summary (presumably in the ward office), as direct quotes were made from [Dr B]. [Dr F], as a junior house officer however might not be expected to fully appreciate the significance of the term 'thyroid CMO?'.

The transition to electronic records does create potential problems when all relevant material is not available for review at the bedside — it is not clear that this was an issue for the team looking after [Ms A], but it does seem a possibility.

It is recommended that the DHB review its processes to ensure that where practicable all possible current patient information is available at the bedside.

[Ms A] was discharged on 30 Sept 2015 without arrangements for either an echocardiograph or a cardiology follow up.

The European Society of Cardiology Guidelines (2010) include transthoracic echocardiography as part of the minimum evaluation for patients with atrial fibrillation.

[Dr B] in ED did carry out an informal echocardiograph. Such an examination would not be considered diagnostic, but did raise concerns in [Dr B's] mind about [Ms A's] left ventricular function. A formal echocardiograph performed on [Ms A] would have demonstrated her critical left ventricular impairment and also ruled out significant organic valve disease, especially rheumatic heart disease (important in [a woman of her ethnicity]).

It is accepted that echocardiography in the presence of rapid atrial fibrillation may not give an accurate picture of left ventricular function, so awaiting better heart rate control is acceptable. There is no evidence that echocardiography was considered by [Dr D] with or without the issue of heart rate control.

Failure to arrange an echocardiograph in a patient atrial fibrillation in whom thyroid cardiomyopathy is a clinical possibility would be regarded as a moderate departure from accepted practice and which would not be well regarded by peers.

<u>Admission 10 Nov 2015</u>
When [Ms A] was admitted to ED on this occasion, the information readily available to [Dr C] would have been the discharge summary from [Dr F], information from the ambulance service, nursing staff, [Ms A] herself and possibly members of [Ms A's] family.

In the formal diagnostic section of [Dr F's] discharge summary no mention was made of possible left ventricular impairment (unsurprising as this hadn't been considered by the inpatient team). The comments from [Dr B] that were reproduced in the summary were

buried 2/3 of the way down page two. There is no evidence that [Dr C] read them or if he did, as a junior house officer, he may not have understood their significance.

In the period of just under two hours between [Ms A's] admission at 2340 hours and her collapse, there are no contemporaneous notes written by [Dr C] — the only notes being typed in retrospect at 0351 hrs. There is a brief note about an examination by [Dr G] in which no heart murmurs or physical signs of heart failure were detected.

Under these circumstances it is difficult to know just what information was available to be communicated to [Dr E] some 3 hours earlier. The cardiac history noted by [Dr C] is very limited, indeed the best cardiac history was obtained from [Ms A's] family by the Intensive Care registrar in [DHB2] who elicited symptoms of heart failure extending over at least two months. Whether [Dr C] or his senior [Dr G] (or indeed any of [Ms A's] other medical attendants in the preceding 2 weeks) had enquired after such matters as orthopnoea, nocturnal dyspnoea or ankle swelling, or whether [Ms A] was rather reticent about her symptoms is unclear. Certainly there is no documentation of these questions being asked, or of the replies.

It is accepted that patients admitted to an Emergency Dept may be in some distress and unable to give a full history. [Ms A] was however able to respond to questions about nausea/vomiting and bowels which seems somewhat irrelevant in the face of a severe symptomatic cardiac problem. In the circumstances, failure to take a detailed cardiac history would be regarded as a mild departure from appropriate practice.

Failure by [Dr C] to make notes at the time he first saw [Ms A] meant that these could not act as an aide memoire when talking to [Dr E]. Such notes would also have made it clear whether [Dr C] or [Dr G] had accessed information about [Ms A's] recent admission with atrial fibrillation and thyrotoxicosis or [Dr B's] findings.

If indeed [Dr C] or [Dr G] had not reviewed a summary of [Ms A's] recent admission for the same condition, this would be regarded as a serious departure from accepted practice and viewed poorly by peers.

Please comment on [Dr E's] decision to administer [Ms A] Flecainide. In particular, do you consider that she should have considered whether Flecainide was contraindicated?
Flecainide is a drug most frequently used in an oral form to either prevent episodes of atrial fibrillation or intravenously as the most effective agent to revert episodes of atrial fibrillation of recent onset (less than 1 week's duration).

Flecainide is recognised as being pro-arrhythmic ie has the propensity to cause life threatening ventricular arrhythmias, particularly in patients with impaired left ventricular function or coronary disease. Flecainide is negatively inotropic so can cause a deterioration in heart muscle function in patients with heart failure. Flecainide is therefore generally regarded as contraindicated in structural heart disease (at least in the first instance).

Flecainide and other means of reverting atrial fibrillation to sinus rhythm are not recommended in hyperthyroidism or persistent atrial fibrillation because they are regarded as being unlikely to be effective. (AHA/ACC/HRS practice guidelines 2014).

[Dr E], in her response to the Commissioner's enquiry states:

> 'I had no reason to suspect structural heart disease in a relatively young woman, so recommended IV Flecainide 150 mg over 20 minutes. At that time I was not aware that [Ms A] was thyrotoxic, nor did I know she had a recent admission to the Emergency Department (29 Nov) with palpitations.'

When asked for permission to use a drug like Flecainide it would be common practice to enquire after possible contraindications. Failure to do so would be regarded as a moderate departure from accepted practice and meet with moderate disapproval from peers.

As nobody (apart from [Dr B]) understood the severity of [Ms A's] condition, this information was never going to be conveyed to [Dr E], even had she asked, so her decision to recommend Flecainide was reasonable under the circumstances.

Had [Dr E] been aware of the diagnosis of thyrotoxicosis or of [Ms A's] persistent atrial fibrillation, the decision to use Flecainide would be regarded as a mild departure from accepted practice.

The lack of contemporaneous notes is a vexed issue. Wairarapa, like all DHBs is in a lengthy transition phase between a written clinical record and a fully electronic one. In the absence of a bedside device, medical staff have the option, when reviewing a patient, of making handwritten notes that are then transcribed into the electronic record in the form of a summary, or simply examining the patient, then sitting down at a terminal and entering the notes directly into the electronic record. The problem with this latter approach is that it can be subject to interruptions and/or loss of train of thought, particularly in a busy Emergency Department. This would appear to have been the situation in [Ms A's] case as no medical notes were made in the period between admission and her collapse.

Medical notes made at the time of first assessing a patient would be the expected standard of care. In the absence of mitigating factors as above, failure to make notes at the time would be a moderate departure from accepted practice.

<u>Events following [Ms A's] cardiac arrest</u>

From the point of [Ms A's] collapse things were managed with a considerable degree of skill, given she survived with such critical left ventricular function.

Transfer to [DHB2] and the care [Ms A] received there were all appropriate up to the point of discharge.

Please comment on the decision to discharge [Ms A] from [DHB2] without anticoagulants.
[Ms A] had been prescribed dabigatran in the cardiology ward — the drug being stopped … (appropriately) for the purposes of angiography. There were no contraindications to restarting Dabigatran and nothing in the notes to suggest that permanent cessation of Dabigatran was intended. That being the case, the failure to prescribe Dabigatran was clearly due to an oversight.

It is worth noting that as [Ms A] was anxious to go home, she was discharged before the paper work was complete and her prescription was faxed to her pharmacy. Had there been an opportunity to sit down with [Ms A] and go over the prescription with her before discharge, it is possible that the omission might have been noted either by [Ms A] or the discharging staff.

Anticoagulant treatment is recommended in patients with atrial fibrillation and additional risk factors that increase the likelihood of stroke. The risk of stroke in atrial fibrillation and the consequent need for anticoagulation are recommended to be calculated using the CHA2DS2-VASc score (European Society of Cardiology 2012 and ACC/AHA task force on Practice guidelines 2014). [Ms A's] score was 2 out of a maximum possible score of 9. Patients with scores of 2 or more are recommended for anticoagulation in the absence of contraindications.

Failure to institute anticoagulant therapy in [Ms A's] case would be a moderate departure from accepted practice and would not be well regarded by peers.

SUMMARY
Clinical history taking, examination, review of recent discharge summaries and review of the results of recent investigations are fundamental to the practice of medicine. It is clear that in [Ms A's] case some, if not all, of these steps cannot have taken place at various times during her admissions to Wairarapa [DHB]. With the notable exception of [Dr B], the net result was that the overall standard of medical care delivered to [Ms A] up to the point of her cardiac arrest was poor and below that expected in a New Zealand Public Hospital.

Review of this report:
Various aspects of an anonymised version [of] this report have been reviewed by … senior clinicians: …

I am grateful for their input which has been very helpful. The responsibility for the content of this final report is however entirely mine.

Clyde Wade