

Emergency Medicine Registrar, Dr C
Otago District Health Board

A Report by the
Health and Disability Commissioner

(Case 04HDC12081)



Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Parties involved

Mr A	Consumer (deceased)
Mrs A	Complainant/Consumer's wife
Ms B	Complainant/ Consumer's daughter
Dr C	Provider/ Emergency medicine registrar
Otago District Health Board	Provider
Mr D	Ambulance paramedic
Mr E	Ambulance officer
Mr F	Triage nurse
Ms G	Registered nurse
Ms H	Associate charge nurse
Ms I	Registered nurse

Complaint

The Commissioner received a complaint from Mrs A on 19 July 2004, and one from Ms B on 5 August 2004, about the services provided to Mr A (deceased) by Otago District Health Board. The following issues were identified for investigation:

- *The appropriateness of the care and treatment provided by Dr C to Mr A when Mr A attended the Emergency Department at Dunedin Hospital on 3 May 2004.*
- *The appropriateness of the care and treatment provided to Mr A by Otago District Health Board at Dunedin Hospital on 3 May 2004.*

An investigation was commenced on 24 May 2005.

Information reviewed

- Information from Mrs A
- Information from Ms B
- Information from Dr C, including a report from Dr Garry Clearwater, a specialist physician in emergency medicine

- Information from the District Health Board, including:
 - Mr A's clinical records, notes and relevant correspondence
 - Incident Report and Investigation notes, dated 3 May 2004, including reports of:
 - Mr D, Paramedic
 - Dr C
 - Ms H, associate charge nurse
 - Ms G, registered nurse
 - Ms I, registered nurse
 - Mr F, registered nurse
 - A registered nurse
 - Emergency Department shift report, dated 3 May 2004
 - Email, dated 4 May 2004, re 3 May 2004 Emergency Department shift report
 - Otago District Health Board's Clinical Review Panel Report, and recommendations
 - Emergency Department Handbook 2005, including guidelines for renal colic (in use May 2004)
 - Dunedin Hospital Emergency Department General Philosophy (29 January 2001)
 - Documentation ED Nursing (22 October 2001)
 - ED Admissions (27 March 2002)
 - Admitting Acute Patients from Emergency Department (19 March 2003)
 - ED Investigations of Renal Colic in Adults Guideline (17 June 2004)
 - Administering an Intravenous Urogram (1 October 2004)
 - Post-mortem report from the pathologist
- Information from ACC, including statements from:
 - An ambulance paramedic
 - An ambulance team leader
- Independent expert advice to ACC from:
 - Dr Scott Pearson, specialist physician in emergency medicine
 - Dr Andrew Swain, specialist physician in emergency medicine

Independent expert advice was obtained from Dr Chip Jaffurs, specialist in emergency medicine.

Information gathered during investigation

Overview

Mr A, a large 59-year-old, was admitted to the Emergency Department of Dunedin Hospital by ambulance at 12.38am on 3 May 2004 with abdominal pain, vomiting and hypotension. He was examined and assessed by Dr C, registrar in emergency medicine. Dr C provisionally diagnosed Mr A with renal colic. Mr A underwent several investigations and received treatment while in the Emergency Department. Dr C considered that Mr A's condition had stabilised and Mr A was discharged home at approximately 5.30am.

At approximately 9.00am Mr A collapsed at home and died. The cause of Mr A's death was a ruptured abdominal aortic aneurysm ("AAA") resulting in a massive haemorrhage and shock.

In May 2004, Otago District Health Board ("the Board") had clinical guidelines in place for managing the investigation of Emergency Department patients with renal colic ("the guidelines"). The guidelines included a patient undergoing a CT or intravenous urogram, and a referral to the urology registrar or surgical registrar for immediate management/follow-up.

Dr C

Dr C completed his degree (MBChB) in 1999, and he has worked at Dunedin Hospital since that time. For the past two-and-a-half years, Dr C has worked in the Emergency Department. He is a trainee of the Australasian College of Emergency Medicine, having passed Part One/Primary Examinations in Emergency Medicine.

Chronology of events

Ambulance assistance

Late in the evening of 2 May 2004, Mr A suddenly developed severe abdominal pain. He telephoned his daughter, Ms B, shortly before midnight and informed her that he was feeling unwell. Soon afterwards, Ms B arrived at Mr A's home and promptly called 111. Mr D, advanced paramedic, and Mr E, ambulance officer, ("the ambulance crew") were sent to assist Mr A. When the ambulance crew arrived at Mr A's home at 12.07am, they were met by Ms B. Mr E called the Ambulance Regional Communication Centre to request the assistance of another ambulance.

The ambulance crew obtained a history from Mr A, and he informed them that he had experienced a sudden onset of abdominal pain and vomiting. Mr A's whole abdomen was extremely tender and soft on palpation, with guarding on his right side. He had pain in his right upper abdominal quadrant that was moving down to his right testicle. He was

pallid (white) head to toe and diaphoretic (sweating). His blood pressure was 70/41mmHg, respirations were 12, saturations 91% and BSL (blood sugar levels) 9mmol/L. His pedal pulses were difficult to palpate, with a capillary refill time of four seconds on his feet. He was conscious and communicating most of the time, but he did have “one episode of postural syncope [fainting] > immediately self resolving”. Mr A vomited several times. His blood pressure, after receiving a fluid challenge of 500ml of normal saline, was 85/60mmHg while supine (lying on his back), his respirations 12 and saturations 97%. A 12-lead ECG did not indicate any acute changes, and there was normal sinus rhythm.

Arrangements were made to transfer Mr A to the Emergency Department at Dunedin Hospital. At 12.20am the second ambulance arrived at Mr A’s address and the team assisted Mr D and Mr E with Mr A’s transfer to hospital. At 12.25am the ambulance left Mr A’s home. Ms B accompanied her father in the ambulance. The Emergency Department was informed of Mr A’s impending arrival; in particular, that he was a status 2 — unstable patient.

Emergency Department observations and care

Mr A arrived at the Emergency Department of Dunedin Hospital at 12.35am. Mr D (the paramedic) communicated to the receiving hospital staff the seriousness of Mr A’s original presentation and (at least twice) the possibility that the underlying cause of his condition was an AAA, and that a surgical team might be needed. Mr A was triaged by Ms F, registered nurse, at 12.38am and given a priority code of 2. His presenting problem was listed as abdominal pain and hypotension (abnormally low blood pressure). The ambulance paramedics handed over the care of Mr A to Dr C, emergency medicine registrar, Ms H, associate charge nurse, and Ms G, registered nurse.

Ms G stated that the handover was given while cardiac monitoring leads were placed on Mr A. She further advised that the ambulance staff informed the hospital team that they had been called to Mr A’s house where they had found him pale, cold and clammy and shocked with a low blood pressure. He had also complained of severe abdominal pain that radiated into the region of his right flank. The ambulance staff had commenced intravenous fluids, but had not given Mr A any analgesia owing to his low blood pressure.

Ms G says she heard Ms H ask Dr C if he wanted the surgical team to review Mr A. Dr C advised that he did not activate a SEAM (surgical evaluation and management team) call, but elected to await the results from Mr A’s blood tests and from X-rays of his chest, kidneys, ureters and bladder (“KUB”). A primary assessment was completed, indicating that Mr A’s airway breathing and circulation were intact; he was alert; and his skin was pale, cool and clammy. Mr A’s blood pressure was 110/68mmHg, temperature 35°C, and

respirations 28. His blood sugar level was 9.0mmol/L, and his oxygen saturations 98% on 6L of oxygen.

Mr A's baseline observations were taken and recorded by Ms G. Mr A's blood pressure on his right arm was 111/78mmHg, and on his left arm 126/80mmHg. Mr A told Ms G that the pain he was experiencing was constant in nature. She took an ECG recording and informed Dr C of the results. She then took blood samples from Mr A, sent them to the laboratory for routine testing and cross matching, and inserted an intravenous cannula into Mr A's arm.

Dr C obtained a medical history from Mr A. This included a history of ischaemic heart disease, coronary artery bypass graft five years previously, myocardial infarction, stable angina and hypertension. He was also a smoker. His medication included aspirin, metoprolol (beta-blocker), Lipitor (lipid-modifying agent), and isosorbide mononitrate (vasodilator used to prevent angina). He had no known allergies.

Dr C proceeded to examine Mr A. He noted that for two hours Mr A had experienced right-sided back pain that radiated to his right groin and testicle, and the pain made him move around. Mr A had also vomited several times, but he did not complain of any change in bowel habits, dysuria (difficulty or pain when passing urine) or frequency (a greater than normal frequency or the urge to void urine without an increase in the total daily volume of urine output).

Dr C examined Mr A's abdomen, did not feel a pulsatile mass (a mass characterised by regular rhythmical beating), and noted that apart from mild right flank pain and right iliac fossa pain Mr A had no guarding (involuntary contraction of the abdominal wall muscles) or rebound (a sudden contraction of muscle after relaxation). Dr C's examination of Mr A's cardiovascular and respiratory status did not detect any abnormalities. His chest was resonant (meaning that an echo or other sound was produced by percussion during physical examination) and his femoral pulses were symmetrical. Dr C detected a systolic murmur at the apex (tip) of Mr A's heart. Dr C documented that Mr A also had "a regular pulse, JVP [jugular venous pressure] 0-1, and shifting creps [crackling sound in the lung]".

At 12.50am Mr A's heart rate was 66, his blood pressure 133/67mmHg and his respirations 17. Dr C ordered that Mr A be given morphine 5mg, and Ms G administered this at 12.55am. The morphine appeared to relieve some of Mr A's pain and he had a chest X-ray. At 12.55am his respirations were 28 and his heart rate was 72.

Dr C advised that he thought Mr A's episode of pre-admission hypotension had been a vaso-vagal response (that is, excessive activity of the vagus nerve, causing slowing of the heart and a fall in blood pressure, which leads to fainting). As Mr A had had coronary artery bypass surgery five years previously, Dr C thought that it was unlikely that an

AAA would have been overlooked in the extensive work-up to that procedure. He then formed a provisional diagnosis of renal colic (a condition characterised by sharp, severe pain in the lower back over the kidney, radiating forward towards the groin).

At 1.04am, Dr C noted in Mr A's clinical records: "Ambo record BP 70/41 Reduced level of consciousness". At 1.05am Mr A's heart rate was 62 and his respiratory rate was 25; at 1.10am his heart rate was 58 and his respiratory rate was 26; and at 1.15am Mr A's blood pressure was 109/43mmHg, and his pulse was 63. Ms G gave Mr A another 5mg of morphine at 1.30am, and he was given further intravenous fluids. Ms G escorted Mr A to the X-ray department for an abdominal KUB X-ray.

Upon his return from X-ray at 2.00am, Mr A was moved from the resuscitation room to an acute bed in the cubicles. Dr C reviewed Mr A's X-rays and thought they were normal. Mr A's blood test results indicated that he had a slight elevation of his neutrophil count,¹ and his urine test indicated that he had red blood cells and protein in his urine.

At 2.10am Ms G took Mr A's observations and recorded his blood pressure as 120/68mmHg, his temperature 36°C, and pulse 75. His oxygen saturations were 96% on room air. At 3.00am Mr A attempted to pass urine, but was unable to do so. Dr C ordered a further litre of intravenous fluids be given to Mr A so that more urine could be obtained for testing. Mr A's intravenous fluid chart indicates that he was prescribed 3L of intravenous normal saline during his stay in the Emergency Department. However, it is unclear how much normal saline Mr A actually received. The fluid chart indicates that Mr A's urine output was 100ml during his admission to the Emergency Department.

Ms G gave Mr A a further 5mg of morphine and asked Dr C if he was planning to refer Mr A to the surgical team for review. Dr C indicated that he was not intending to make the referral.

At approximately 4.30am Ms G obtained a mid-stream urine specimen from Mr A and sent it to the laboratory for testing. The laboratory results again indicated the presence of blood and protein in Mr A's urine.

Dr C advised that, although the hospital's written protocol was for renal colic patients to be referred to a surgical registrar, it was common practice in the Emergency Department at that time not to do so. Also, at the time there was no urology registrar available at night. Mr A's observations had remained stable for five hours, and he was improving (with morphine and normal saline). As his blood tests, X-rays and ECG were within

¹ White blood cells that remove and destroy bacteria, cellular debris and solid particles.

acceptable limits, and he had red blood cells in his urine, Dr C thought his provisional diagnosis of renal colic was supported, and that it was appropriate to discharge Mr A.

Dr C says that he told Mr A that he thought he had renal colic, that his X-ray was normal, and that he would arrange for him to be followed up as an outpatient by the Urology Department and have a CT urogram (CTU) in the next few days. Mr A was given a note to be off work and a prescription for Brufen (a non-steroidal anti-inflammatory analgesic agent and anti-pyretic) and paracetamol (analgesic/antipyretic agent). However, Ms B believes that Dr C did not give Mr A any information regarding follow-up. Dr C dictated a letter to the Urology Outpatients Department requesting them to follow up Mr A and advising them he had arranged a CTU.

Mr F asked Ms I to remove the venflons (intravenous cannulae) from Mr A's arms. At that time, Ms I thought that Mr A seemed comfortable. Following this, at approximately 5.28am Mr A left the Emergency Department with Ms B, and they returned to his home by taxi.

At approximately 9.00am Mr A collapsed on the floor of his bathroom. Ms B called 111, and an ambulance arrived at the house at 9.10am. When this ambulance team arrived at the scene, Mr A was unconscious, not breathing and in cardiac arrest. Attempts were made to resuscitate Mr A, without success, and he died at approximately 9.40am.

Post-mortem

A post-mortem was undertaken. In his report, the pathologist commented that 1800ml of blood was found in Mr A's abdominal cavity and that he had severe atherosclerosis in the remainder of his aorta and major branches. The pathologist found that Mr A's death was due to massive haemorrhage and shock complicating a ruptured aortic aneurysm.

Context of care

Dr C's working environment on 3 May 2004

Mr A was the eighth patient Dr C had seen in the first two-and-a-half hours of his duty, in the early hours of 3 May 2004. In total Dr C saw 19 patients that night. There were 13 bed spaces overnight, aside from two resuscitation areas for unwell incoming patients. Dr C was also involved in assessing patients for discharge. He says that this was because there were not the beds or resources to keep them in hospital. He was the only Emergency Department registrar on duty after 2.00am and he felt pressured to treat the patients he saw "as quickly and safely as possible".

Dr C advised that although the guidelines for renal colic stated that patients with this diagnosis were to be referred to a surgical registrar, in May 2004 it was common practice not to make the referral. Patients with renal colic would be referred to the Urology Department for follow-up.

Renal colic guidelines

The Emergency Department Handbook 2005 lists the “Renal Colic Guidelines” that were in place in May 2004 as follows:

- “1. All patients presenting to the Emergency Department with renal colic should have renal/ureteric/bladder imaging, MSU, CRP, creatinine and full blood count.
2. Imaging is dependent on the presence of calculus on a plain film (Kidney, [Ureter], Bladder — KUB) and the presence of contraindications to intravenous urogram (IVU).
3. Allergy to contrast, impaired renal function, no calculus on KUB — CT Urogram.
4. No contraindications and calculus visible on KUB — IVU. Delay in function mandates 4 hour plain film.
5. Refer all patients to Urology registrar or Surgical registrar for immediate management/follow-up.

NB: Abdominal aortic aneurysm can have an identical presentation to renal colic and can even cause haematuria. This must be considered in the assessment of at risk groups — older age, arteriopathy, even if they have had a previous history of renal calculi.”

Subsequent events*Otago District Health Board*

On 3 May 2004, an incident report was completed on Mr A’s case. Following this, the Board commenced a full investigation into the care provided to Mr A, which included obtaining reports from the parties involved in Mr A’s care and treatment. A root cause analysis was undertaken, following which the Board report made seven recommendations for corrective action:

- “1. It is the recommendation of the Review Panel that the Chief Medical Officer considers two options for lightening the heavy workload that can occur in the Emergency Department, particularly ‘after-hours’. This is either by increasing the staff numbers or by improving the flow of patients through the Emergency Department into either a holding area or onto the wards.
2. The Review Panel recommended, effective immediately, any patient presenting with a possible diagnosis of bleeding aortic aneurysm (raised by any competent

health care provider) must have formal imaging performed of the aorta before they can be discharged or sent to a ward.

3. The Review Panel recommends that a report be produced for the Chief Medical Officer looking at the current use of ultrasound within the Emergency Department and also put in place a mechanism whereby someone with expertise in ultrasound is always available to perform this investigation.
4. The Review Panel recommends that the Emergency Department reinforce to all staff the wording and intent of the policy that all patients suspected of renal colic have a CT Urogram performed before discharge.
5. The Review Panel recommends that, effective immediately, all patients in the Emergency Department cubicles must be connected to vital sign monitoring equipment.
6. The Review Panel recommends that, effective immediately, the Emergency Department must institute a discharge planning sheet that requires the medical staff to sign off that they have reviewed the drugs and fluids administered, as well as output such as vital sign monitoring and urine output before a patient may leave the Department. This sheet is to be signed both by the Doctor and the Nurse who have been responsible for the patient for the majority of their stay.
7. The following is a somewhat wider recommendation and is perhaps beyond the scope of this report, however the Review Panel felt it would be timely to review the Hospital processes for admitting and processing patients while in the Emergency Department. It was felt that we should be looking for more efficient ways to either move patients through the Emergency Department to the ward or move them to an appropriate holding area that is separate from the Emergency Department so the Department itself does not become a holding area and therefore contribute to the workload or number of patients in a department at any one time.”

The Board provided Ms B with a copy of the recommendations and had several meetings with her. However, Ms B advised me that she did not receive an apology from the Board.

In August 2004, the Board advised that the recommendations had been implemented as follows:

- “1. As of two weeks ago extra resourcing in terms of medical and nursing staff has been provided for the emergency department. This is to ensure that there are two medical staff on duty in the emergency department after hours. This extra resource has been provided with the understanding that over the next twelve months there will be a review of our processes and systems in the way we

- currently process patients presenting to the emergency department. It may ultimately be that extra resource will be provided for other areas so that patients may be processed more efficiently.
2. Monitoring. This issue has proved to be quite a contentious one. The staff are as equally adamant that the patient was monitored and clearly Mrs B is adamant that patient was not. The Emergency Department has twelve monitored beds and it will be now a policy that patients who are in these cubicles will be monitored.
 3. The staff in the Emergency Department have agreed to develop a discharge process whereby there is a sign off by both a doctor and a primary nurse when a patient is discharged.
 4. The Emergency Department staff have been reminded of the importance of adhering to the guidelines with regard to imaging when a patient is suspected of having renal colic. These will be reinforced and will be adhered to.
 5. The availability of urgent ultrasound investigations either within the department with the appropriate experienced people or our own radiology department will be assured.”

In November 2004, the Board provided further comment on the actions taken to implement the recommendations of the Review Panel, as follows:

- “1. The complement of junior medical staff in the Emergency Department has been increased by 4.5 FTE [full-time equivalents]. [The Board has since increased staffing in the Emergency Department as follows: Senior House Officers from 3 to 7 FTEs, registrars from 8 to 9 FTEs and Senior Medical Officers from 5.5 to 7 FTEs].
2. ED staff have been informed that any patient presenting with a possible diagnosis of bleeding aortic aneurysm (raised by any competent health care provider) must have formal imaging performed of the aorta before they can be discharged or sent to a ward.
3. The Radiology Department has confirmed that ultrasound services are available 24-hrs a day if so required.
4. All patients suspected of renal colic are to have a CT Urogram performed before signing off the diagnosis.
5. All patients in the Emergency Department cubicles must be connected to vital sign monitoring equipment, however, [it is noted] that not all cubicles in the

Emergency Department have the facility to provide continuous multiparameter physiological monitoring by electronic means for patients.

6. The development of the discharge planning sheet has been a requirement of our review.
7. A review has been initiated which will include the interface with the ED and the ‘flow’ of patients from ED to the Internal Medicine department, where the majority of acute admissions go.”

ACC medical misadventure claim

On 28 September 2004, a claim was lodged on behalf of Mrs A for medical misadventure in respect of the delay in diagnosis of Mr A’s abdominal aortic aneurysm (“AAA”).

Independent advice was provided to ACC by Dr Scott Pearson, a specialist emergency physician. Dr Pearson attributed the cause of Mr A’s physical injury (ruptured aortic aneurysm) to a delay in diagnosis. Dr Pearson commented that there was a guideline within the hospital for the diagnosis of renal colic at the time Mr A was seen by Dr C, which specifically mentioned that AAA can have identical presentation to renal colic and can even cause haematuria. The guideline required that this must be considered in the assessment of at-risk groups — older age, arteriopathy, even with a history of renal calculi. Dr Pearson also referred to Point 5 in the guideline that states: “Refer all patients to Urology registrar or Surgical registrar for immediate management/follow-up.” Dr C had not followed these departmental guidelines.

Dr Pearson also noted that there were five reasons why Dr C should have questioned the diagnosis of renal colic:

1. At the time of initial presentation, Dr C was advised of Mr A’s pre-admission condition, and the paramedic’s diagnosis of AAA.
2. Mr A’s age and the absence of any previous history of renal calculi.
3. The fact that Mr A clearly suffered from vascular disease affecting his coronary arteries.
4. The episode of pre-hospital hypotension.
5. Mr A’s size, which made abdominal palpation of an AAA more difficult.

On 25 January 2005, ACC accepted Mrs A's claim as medical error. Dr Andrew Swain, independent advisor for ACC, subsequently provided a report in support of ACC's decision. In summary, Dr Swain advised:

“Rupture of an abdominal aortic aneurysm should have been the diagnosis to exclude when [Mr A] was taken to the Emergency Department of Dunedin Hospital on the night of 2nd/3rd May 2004. However, it was not unreasonable for a provisional diagnosis of renal colic to be made initially.

In the light of [Mr A's] cardiovascular history and significant risk factors, the episode of hypotension and clinical shock should have been taken seriously. He should have been detained in the Emergency Department for further review and investigations to try and exclude a sinister cause for this episode. Aneurysmal rupture and atypical myocardial infarction should have been considered in the Registrar's differential diagnosis.

If [Mr A] had been reassessed carefully, his blood pressure had been monitored, his renal colic had been investigated further, and he had been referred to the Surgical Registrar in accordance with hospital policy, I believe that he would have been admitted for emergency surgery in advance of the collapse and cardiac arrest which occurred at [9am] that day. The likelihood of him surviving emergency surgery would have been approximately 50% although I note that the Chief Medical Officer quotes a figure of at least 50%.

Conclusion

[Mr A] suffered physical injury as a result of his treatment in the Emergency Department of Dunedin Hospital on 3rd May 2004. Sadly, this resulted in his death. The health professional involved was [Dr C], the Emergency Department Registrar. At Registrar level, I believe that a reasonable standard of care was not provided as the patient was not adequately reviewed or investigated and he was discharged prematurely. Despite this, I do not consider competence to have been an issue and can identify no matters of public interest.”

ACC review and report of Dr Garry Clearwater

Dr C sought a review of ACC's decision. At the review hearing on 21 October 2005 Dr C submitted a report by Dr Garry Clearwater, specialist physician in emergency medicine, in support of his claim for review.

Dr Clearwater submitted that the decision of ACC to attribute the cause of death to medical error was unreasonable. Dr Clearwater noted the difficulty in diagnosing AAA. Dr C was working in difficult circumstances. Contributing factors were that the Emergency Department in Dunedin Hospital was understaffed, Dr C was working alone

and with an unsafe workload, he was tired and hungry, and he did not have an adequate opportunity to consider his cases in a measured manner. He had no consultant or colleague on site with whom to discuss the case and he did not have adequate access to the crucial tests of ultrasound or CT. The guideline for renal colic was not used consistently and Dr C had acted within a “standard of care” based on “common practice” within the Emergency Department. Dr Clearwater said that the outcome for Mr A would have been different if Dr C had seen him on a day shift, and had been managing a standard workload, with time to consider his cases in more detail and consult relevant guidelines. During the day, a consultant or colleague would have reviewed the case and/or an urgent ultrasound would have been readily available, and the diagnosis of AAA would have been made before any decision was made to discharge. Dr Clearwater said that “one can’t attribute individual errors to this individual doctor when the circumstances so clearly affected the outcome”.

The ACC reviewer upheld the finding of “medical error” on the following grounds:

“Having carefully read all of the available medical evidence, I consider that [Dr C’s] error occurred not so much in the misdiagnosis but in the events which followed. Having reached a diagnosis of renal colic, he proceeded to discharge [Mr A] at 5.30 in the morning, just a few hours prior to the hospital being in full operation. His discharge of [Mr A] did not comply with the guidelines which he said he was aware of which suggested that the patient be referred to a Urology Registrar or Surgical Registrar for immediate management/follow-up. Although [Dr C’s lawyer] suggested that the guidelines did not require referral prior to discharge, [Dr C] gave direct evidence that it was [his] understanding that the guidelines did require referral prior to discharge.

...

Having considered that medical evidence and taking into account the guidance by the High Court in the decision in *Ambros*² I am persuaded that ACC correctly accepted this claim as one of medical error against [Dr C].”

² *Ambros v ACC* (High Court Auckland, CIV 2004-404-3261, 21 March 2005).

Independent advice to Commissioner

The following expert advice was obtained from Dr Chip Jaffurs, specialist in emergency medicine:

“I am responding to your request for advice as outlined in your letter dated 15th July 2005. I have reviewed the materials³ you have sent to me and these are returned as required. These are listed on page 3 of the document entitled medical professional expert advice — 04HDC12081 and include:

1. Letters of complaint from [Mrs A].
2. Letters of complaint from [Ms B].
3. Letters of notification to the parties.
4. Information from [Dr C].
5. Information from Otago District Health Board including the clinical review panel report.
6. Information from ACC.
7. I will add that of significance there are independent reviews from 3 Emergency Medicine Consultants, Dr Andrew Swain, Dr Scott Pearson, and Dr Garry Clearwater.

Having reviewed the above materials I do not feel that I have any personal or professional conflict with the interests in this case.

I am an Emergency Medicine Specialist with fellowships in the Australasian College of Emergency Medicine and the American College of Emergency Physicians. I am currently a Consultant Level Specialist Emergency Physician in full time Clinical Practice at Whangarei Base Hospital as an employee of Northland Health Ltd. I have read your ‘Guidelines for Independent Advisors’ and agree to follow them.

The case is briefly summarised as follows:

[Mr A], 59 years old, was transported by ambulance to the Emergency Department of Dunedin Hospital with severe back and abdominal pain. His triage time is recorded as 00:38hrs. He was given a ‘priority code’ of 2 and presenting problem listed as abdominal pain and hypotension. I note that missing from the medical records supplied by the Otago District Health Board is the ambulance call sheet which I would expect to contain blood pressure and other vital signs obtained during

³ Dr Jaffurs was subsequently provided with further documents: letter of reference to Urology Clinic; ambulance report sheet; an incident report; miscellaneous missing pages without clinical content. He confirmed on 8 September 2005 that their content did not alter his opinion.

transport to the Emergency Department. On page 190 in the statements submitted by Paramedic [Mr D] this information is given. His blood pressure was 70/41 left arm equal to right arm, he was given an intravenous fluid bolus of 500mls sodium chloride solution. He was deemed status 2 and this was communicated to the Hospital. Ambulance arrived at the Hospital at 00:35hrs. Apparently this information was communicated verbally to the medical staff in attendance.

The patient was seen initially by [Dr C] at 12:38am. He [was] noted to have right sided back pain radiating to the right groin right testicle causing him to move around associated with vomiting. Hypotension in the ambulance is noted at 70/40 associated with a reduced level of consciousness. Abdomen was soft with a tender right flank right inguinal fossa but no guarding or rebound. He had symmetrical femoral pulses. Studies including chest and abdominal X-rays, blood work were deemed normal with the exception of a slight elevation of the neutrophil count 10.83 and red blood cells and protein detected in the urine. At this time his blood pressure was 110/68 pulse 68. Patient was confirmed to have a medical history of ischaemic heart disease with previous myocardial infarction, hypertension, and tobacco use.

A provisional diagnosis of renal colic was made and the patient was treated with morphine analgesia. He was treated with intravenous fluids and observed in the Emergency Department where his blood pressure remained stable. The intravenous fluid chart indicates that he was prescribed 3 litres of normal saline during his stay in the Emergency Department given intravenously. It is unclear how much of this fluid he actually received. At 05:23hrs [Dr C] has noted in his chart that in view of the normal laboratory studies that the patient will be discharged with an outpatient follow-up for CT urogram and an appointment with the Urology Clinic to be made.

[Mr A] returns home and approximately 9am collapses and subsequently dies. A postmortem examination performed on the 4th May 2004 which commences on page 178 of the enclosed documents lists a cause of death as massive haemorrhage and shock complicating ruptured abdominal aortic aneurysm.

1. What was [Dr C's] role and responsibility in terms of managing [Mr A's] condition?

[Dr C] was a Registrar in the Emergency Department of Dunedin Hospital on the night of 3rd May 2004. As the Consultant had gone home for the night he would have been in charge of the Emergency Department. This means he would have responsibility for assessing all undifferentiated and unreferred patients. He would have been responsible for forming a working diagnosis, instituting management and follow-up care plans. The Emergency Department Registrar is finally responsible for ensuring the safe passage of any patient in the Emergency Department which includes calling for help from other Medical staff when needed.

I note that [Dr C] has 2½ years of Emergency Department experience and had just passed part 1 (of 2) of the Emergency Medicine Specialist exams. He was therefore a rising Senior Registrar, and would be expected to practice with minimal supervision under most circumstances.

2. Was [Dr C's] assessment and treatment of [Mr A] adequate and appropriate?

No. [Mr A] had a documented hypotensive episode pre-Hospital. He had a clear history of atherosclerotic disease involving his coronary arteries. He had a clinical picture of renal colic and was in excess of 50 years of age. This condition is leaking abdominal aortic aneurysm until proven otherwise in all of the texts and articles referred to by your other quoted experts best summarised by New Zealand Emergency Physician Mike Ardagh⁴ [...].

While I find [Dr C's] treatment of [Mr A] deliberate and effective, he has made an error by assuming a less dangerous diagnosis, renal colic, without adequate proof which must include imaging via ultrasound or CT. He ignored clinical guidelines requiring imaging and surgical referral.

If not, why not?

This is a very important addendum to this question. He was too busy. [Dr C] had seen 8 patients during his first 2½ hours on duty, and 19 during his entire upcoming shift of 12 hours. I agree with Dr Clearwater's remarks page 21 and attachment 1*, [attachments listed at end of expert advice] page 3 that Emergency Doctors should on average see 1 patient per hour. He needed advice from either a Senior colleague or a Surgical Registrar.

One must recognise this Registrar was doing his best to keep a busy Emergency Department moving. The reality is that Senior Emergency Physicians use judgement and experience to make a diagnosis and reduce needless investigation and consultation, regardless of guidelines. Registrars strive to emulate this pattern and must make independent decisions in order to progress.

This is a common system and work pattern in New Zealand Emergency Departments that will persist until Specialist staff are plentiful enough to staff night shifts. I firmly believe the most carefully worded guidelines do not make Specialists out of

⁴ "Abdominal Aortic Aneurysm Presenting as Possible Renal Colic", Case study from Michael Ardagh, Emergency Department, Christchurch Hospital, *New Ethicals Journal*, January 2000. This was information obtained from ACC.

Junior Doctors. Dr Clearwater has also discussed this point and provided supportive references page 021. I can fully understand the pressures on this promising Emergency Medicine Registrar, I argue that he met the standard of care delivered in most, if not all Emergency Departments during night time hours. This is a function of resourcing and manpower availability that will be very slow to be corrected judging by current trends. Until such a correction is made, individual errors such as [Dr C's] will continue to occur.

- 3. Was [Dr C's] decision to discharge [Mr A] on 3 May 2004 appropriate? If not, why not?**
- 4. Was [Dr C's] timing of [Mr A's] discharge (at approximately 5.30am) appropriate? If not, why not?**
- 5. Were [Dr C's] discharge/ follow-up arrangements for [Mr A] on 3 May 2004 adequate and appropriate? If not, why not?**
- 6. Was the advice [Dr C] gave [Mr A] regarding his condition prior to his discharge, adequate and appropriate? If not, why not?**

The answer to these 4 questions is yes. [Dr C] made a working diagnosis of renal colic. This condition warrants admission for either intractable pain or renal function compromise due to prolonged obstruction. [Mr A] had neither.

In retrospect the diagnosis was incorrect. The problems of incorrect diagnosis are not the question here.

The timing of his discharge could have been delayed either to obtain Senior Doctor input or to obtain imaging. Increasingly Emergency Departments are requiring that certain high risk categories, as in attachment 2* be held over for Senior review. [Dr C] seemed confident of his diagnosis. The patient, [Mr A], had settled and a follow-up plan was in place, so he was discharged. There is no written discharge advice other than a prescription and a request to urology outpatient clinic. [Dr C] describes his discharge interaction with [Mr A] on page 273. This is satisfactory in my opinion, and has little bearing on the outcome.

- 7. Should [Dr C] have diagnosed [Mr A's] abdominal aortic aneurysm? If so, at what point?**

[Dr C] had many clues that [Mr A] harboured a serious diagnosis. I believe he could have preserved [Mr A's] limited chances for survival, about 50% according to your Surgical Consultant on page 158. He could have done so without making the correct diagnosis by considering the documented episode of hypotension, the patient's age, and his risk factors. All effective strategies include calling for help either by calling the Senior Doctor on call, referring for admission, or calling for a Surgical Emergency Team in view of the patient's stat 2/triage 2 designation. Clearly there

are barriers in the system in all Hospitals which discourage calling for help which must be overcome.

Despite these circumstances, abdominal aortic aneurysm rupture and dissection are notorious for misdiagnosis even by experienced Specialists. Attachment 3* shows experienced Physicians missed the diagnosis 61% of the time. Attachment 4* 'Aortic Disasters' from Emergency Medicine Clinics of North America November 2004 suggests misdiagnosis was common if the classic triad of flank pain, hypotension and pulsatile abdominal mass (absent in [Mr A]) is incomplete. Page 10 contains references to articles describing 10% of patients referred for renal colic as actually having abdominal aneurysm.

Even with a 'Risk Factor' oriented approach, and modern imaging techniques such as Emergency Physician performed bedside ultrasound, leaking abdominal aortic aneurysm is an unusual condition that a busy Emergency Physician may see only once or twice a year.

All things considered, [Dr C] should have made the diagnosis, but more experienced doctors miss this diagnosis regularly. While a standard of care incorporating this unfortunate reality is difficult to apply, I believe his error must be viewed in the context of his work environment and conditions. Significant contributing factors existed. Provisions for adequate number and Seniority of Medical staff, rest periods during long shifts, and automatic summoning of Emergency Teams for status 1 and 2 and triage category 1 and 2 patients must be put in place to prevent similar tragedies in the future.

8. Are [Dr C's] clinical records of an appropriate standard? If not, why not?

[Dr C's] medical records are clear and concise. The note on page 86 appears to have been written at 01:04 hrs. A follow-up note at 05:20 hrs summarises laboratory and X-ray findings, lists a diagnosis and discharge plan. As previously mentioned I do not see any written discharge instructions, though I think they would have little relevance in this case. The nursing notes and observation record do not record any untoward events in the Emergency Department that would have required additional documentation by [Dr C].

[Dr C's] documentation meets a conventional standard of care.

***Attachments:**

1. Guidelines for Staffing and Skill Mix in New Zealand Emergency Departments, (ED Clinical Advisory Group to Ministry of Health, November 2002) page 3.

2. Whangarei's Hospital Emergency Department Orientation Manual for House Officers (updated February 2005).
 3. Lederle FA, Parenti CM, Chute EP, 'Ruptured abdominal aortic aneurysm: the internist as diagnostician': *Am J. Med* (1994) 96(2): 163-7.
 4. Rogers RL, McCormack R, 'Aortic Disasters': *Emergency Medicine Clinics of North America* (2004) 22 (4) page 10."
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Code of Health and Disability Services Consumers' Rights

The following Right in the Code of Health and Disability Services Consumers' Rights is applicable to this complaint:

RIGHT 4

Right to Services of an Appropriate Standard

- 1) *Every consumer has the right to have services provided with reasonable care and skill.*
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Opinion: Breach — Dr C

When Mr A initially arrived in the Emergency Department, Mr D, paramedic, handed over his care to nursing staff and to Dr C. During the handover, Mr A's pre-admission status was discussed, including the episode of hypotension. Mr D suggested to Dr C that Mr A might have an abdominal aortic aneurysm.

Following the handover Dr C formulated a management plan for Mr A's care, including further assessment of his condition, ordering of blood and urine tests and X-rays, and administration of intravenous fluids and analgesia. Ms H, associate charge nurse, asked Dr C if he was going to seek advice from the surgical registrar regarding Mr A's condition, and Dr C indicated to her that he did not intend doing so. Dr C continued his assessment of Mr A's condition, and formed the provisional diagnosis that Mr A had renal colic. Mr A's condition appeared to stabilise and Dr C decided to discharge Mr A home, and to arrange for him to be followed up by the Urology Department as an outpatient.

Dr Jaffurs advised that there were many factors to indicate to Dr C that Mr A had a far more serious diagnosis than renal colic (ie, AAA). The risk factors that Dr C should have been alert to included Mr A's episode of hypotension (of which Dr C had been made aware during the verbal handover given by Mr D, and in documentary form on the ambulance flow sheet), his age, his history of atherosclerotic disease, his clinical picture of renal colic, and his size. Dr Jaffurs noted that "this condition is leaking abdominal aortic aneurysm until proven otherwise". In order to in fact prove that Mr A's condition was less dangerous, Dr C should have followed the departmental guidelines, which clearly stated that a patient with suspected renal colic must undergo imaging via ultrasound or CT, and be referred to the surgical team. In addition, Dr C could have "preserved Mr A's limited chances of survival" by seeking the assistance of a senior doctor, referring Mr A for admission, or calling the surgical emergency team.

However, as noted by Dr Jaffurs and the specialist physician, there were a number of factors mitigating Dr C's misdiagnosis. On the night of 3 May 2004, Dr C was busy, having seen eight patients during his first two-and-a-half hours on duty, and 19 patients during his entire shift, and he was the only Emergency Department registrar on duty after 2.00am. He was also involved in assessing patients for discharge, and needing to ration available beds.

I am guided by Dr Jaffurs' comments that Dr C was "responsible for ensuring the safe passage of any patient in the Emergency Department" and that this included "calling for help from other medical staff when needed". Dr C was tired and busy, but he made three mistakes. He did not follow the departmental guidelines for renal colic (his working diagnosis); he did not contact the on-call consultant; and he did not delay Mr A's

discharge (at 5.30am) in order to obtain consultant input or imaging. Had he taken any of these actions, the AAA may have been detected and life-saving surgery undertaken.

Dr Jaffurs considered that Dr C “met the standard of care delivery in most if not all Emergency Departments [in New Zealand] during night time hours”. Dr Clearwater felt that Dr C had taken reasonable actions in the circumstances (a defence under clause 3 of the Code). Dr Swain considered that, even though his provisional diagnosis was “not unreasonable”, Dr C failed to adequately review or investigate Mr A and discharged him prematurely. Dr Pearson advised that there were several clues that should have led Dr C to question the diagnosis of renal colic, and that he had failed to exercise the standard of care and skill reasonably expected of an ED registrar in similar circumstances.

In my view, the responsibility for the missed diagnosis in this case must be shared between Dr C and the Board. I do not accept that a busy and tired registrar can be excused from all responsibility because of systems failures. If that really is the standard of most New Zealand emergency departments overnight, it is a matter of grave concern. However, it is precisely because of the major responsibility shouldered by registrars in charge of an emergency department overnight that they should pay particular attention to any relevant guidelines,⁵ not hesitate to contact the on-call consultant, and delay the patient’s discharge until appropriate investigations have been undertaken. Regrettably — and apparently uncharacteristically — Dr C was blinkered in his approach, and too quick to dismiss the vital clues from the paramedic. In these circumstances, Dr C breached Right 4(1) of the Code.

⁵ Subject to the important proviso that the guidelines are readily available at the point of care, staff are orientated to them, and they are operational (ie, used in practice). Guidelines should also be regularly reviewed and updated.

Opinion: Breach — Otago District Health Board

Vicarious liability

In addition to any direct liability for a breach of the Code, employers are responsible under section 72(2) of the Health and Disability Commissioner Act 1994 (the Act) for ensuring that employees comply with the Code. Under section 72(5) it is a defence for an employing authority to prove it took such steps as were reasonably practicable to prevent the employee from doing or omitting to do the things that breached the Code.

Dr C was employed by Otago District Health Board. The Board's own investigation report and subsequent recommendations suggest that the medical staffing of the Emergency Department, radiology support, and discharge processes were not of an appropriate standard in May 2004. My provisional view was that this systems failure contributed to the shortcomings in Dr C's care — as noted by Dr Jaffurs and Dr Clearwater.

In response to my provisional opinion, Otago District Health Board submitted:

“Your provisional finding that medical staffing, radiology support and discharge processes were not of an appropriate standard appears to largely rely on the findings of the ODHB's internal review. While the ODHB did identify areas that would be improved in this review, and has implemented measures to improve these areas, the ODHB does not consider that the services available in May 2004 were not of an appropriate standard. Rather, the steps that have subsequently been taken reflect the fact that the ODHB is always looking for, and implementing, measures that can be taken to further improve patient safety.

The ODHB accepts that [Dr C's] workload *may* have been a contributing factor to the error that was made in diagnosing [Mr A's] condition, but does not consider that staffing was of an inappropriate standard. The ODHB believes that it had a safe emergency department at the time of the incident in May 2004. At that time, and now, ODHB has the necessary staffing, radiological support, and discharge processes to ensure patients received appropriate and safe treatment. In that light, ODHB believes that it had taken all practicable steps to prevent [Dr C] breaching the Code.

The ODHB is concerned that your provisional opinion implies that [Dr C] was working in an environment where his workload was great and he had no opportunity to take steps to alleviate the situation. The ODHB has had in place for some time now, including in May 2004, the availability of a senior colleague who can be called into the emergency department at any time. The fact that consultants are called in when the workload is too high for the staff on duty and when particularly difficult patients are in the department demonstrates that staff are aware of the ability to obtain

assistance. The ODHB believes that this practice is the same as that which operates in many emergency departments in New Zealand. This system relies on the staff working at the time to activate it. On the night when [Mr A] present[ed] to the department no call was made to the consultant on call.

Your provisional opinion also implies that radiology services were not available. That view is incorrect. At the time [Mr A] presented to the emergency department, and now, ultrasound and CT imaging services are available 24 hours a day. As with the consultant back up, these services are activated by the staff on duty in the department identifying the requirement for the services and calling the appropriate service.”

Otago District Health Board is to be commended for the steps it has taken to improve Emergency Department services in light of [Mr A’s] case. District Health Boards should be encouraged to undertake a root cause analysis of unexpected patient deaths, and to implement recommendations to remedy any deficiencies identified. It would be unfortunate if Boards were deterred from undertaking a full review of such incidents because of concerns that their own findings may form the basis of legal liability.

However, the legal question is whether the Board has proved (on balance of probabilities) that it took “such steps as were reasonably practicable to prevent” the shortcomings in [Dr C’s] care. I am not satisfied that the Board has discharged the onus of proof. It is not enough for the Board to “believe” that it had a “safe emergency department at the time of the incident in May 2004”.

I am not convinced that the Board had “the necessary staffing, radiological support, and discharge processes to ensure patients received appropriate and safe treatment”. The increase in medical staffing in the Emergency Department — from a sole registrar to 6.5 medical staff, with two medical staff on duty in ED after-hours — suggests that the department was short-staffed in May 2004. I also note Dr Jaffurs’ advice that “the most carefully worded guidelines do not make Specialists out of Junior Doctors”. The Dunedin Hospital Emergency Department needs to aim to have sufficient specialist staff to staff night shifts — although I recognise that this will be a challenge for Dunedin Hospital, as is it for many public hospitals in New Zealand. The bottom line is that care should not be compromised because a patient presents at an emergency department at night or on the weekend. If specialist staff are not on duty in the department, they must be readily accessible on call.

I accept that emergency departments in New Zealand rely on junior medical staff to call the on-call consultant or radiology services and to follow relevant guidelines. For such a system to be effective, it is essential that staff are properly trained and orientated, and encouraged to call the on-call consultant or radiology services — and that the consultants and radiology services in practice have made it very clear how they can be contacted and

can respond promptly. Guidelines must be readily accessible at the point of care, operationalised (ie, used in practice), and regularly reviewed and updated. [Dr C's] evidence indicates that the renal colic guideline — that all patients with this diagnosis should be referred to a surgical or urology registrar for immediate management/follow-up — was commonly not followed in practice.

In my view, Otago District Health Board has attempted to “pass the buck” onto a junior member of staff, Dr C. The Board was responsible for the system in which Dr C worked, and the system was substandard.

In these circumstances, the Board is vicariously liable for Dr C's breach of the Code.

Actions taken

Dr C offered the following unreserved apology to Ms B, in which he acknowledged the lessons he has learnt from Mr A's case:

“When I look back at the events surrounding your father's death there were several errors in the way I cared for him at the time of presentation:

1. Unfortunately I did not recognize the significance of some aspects of your father's history that should have alerted me to consider abdominal aortic aneurysm higher on my list of diagnoses.
2. Regrettably, I did not have time to review the departmental protocol of management of renal colic that would have resulted in more definitive imaging of [Mr A's] abdomen prior to his discharge.
3. Most of all I regret that I did not adequately review your father's presentation and progress while in the department, possibly allowing me to reconsider my diagnosis.

These failures have been addressed in the following ways:

1. I am now more aware of the various presentations of abdominal aortic aneurysm and now place it as a diagnosis that needs to be given serious consideration in younger patients.
2. I am now even more rigid in applying departmental protocols.

3. The emergency department I was working in now has another doctor working through the night allowing greater time to be spent assessing the reviewing patients. This makes the department a safer place for both staff and patients.

In addition to the above I am looking for greater experience in the use of abdominal ultrasound, an investigation that is suitable for screening patients for abdominal aortic aneurysm and other abdominal pathology.

As you can appreciate people are attracted to medicine to help others. When this ethos goes wrong and a tragedy such as this happens you automatically apply the most severe scrutiny to yourself and your practice.

I simply cannot express on paper how much I regret the errors in my management of your father's condition, and the sad outcome for Mr A and his family."

Recommendations

I recommend that Otago District Health Board:

- Apologise to Mrs A and Ms B for its breach of the Code. The apology is to be provided to my Office and will be forwarded to Mrs A and Ms B.
 - Review the adequacy of its current Emergency Department services overnight and at weekends, and confirm to the Commissioner by 1 February 2006 that appropriate staffing, radiology support and consultant cover are in place to ensure the provision of safe care to patients.
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Follow-up actions

- A copy of this report will be sent to the Medical Council of New Zealand and the Australasian College of Emergency Medicine.
 - A copy of this report, with details identifying the parties removed (but naming Dunedin Hospital and Otago District Health Board), will sent to all District Health Boards and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.
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