Senior House Officer, Dr C

Senior Emergency Doctor, Dr D

A Public Hospital

A Report by the

Health and Disability Commissioner

(Case 03HDC10576)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Parties involved

Mrs A	Complainant
Mrs B	Consumer (dec)
Dr C	Provider / Senior house officer
Dr D	Provider / Senior emergency doctor
Dr E	Consumer's general practitioner
Dr F	Emergency Department consultant
Dr G	Chiropractor
Dr H	Clinical Director of the Emergency Department at the public hospital
A Public Hospital	Provider

Complaint

On 15 July 2003 the Commissioner received a complaint from Mrs A about the standard of service provided to her mother, Mrs B, by Dr C and Dr D at a public hospital's Emergency Department. On 18 July 2003 an investigation was commenced and notified as follows:

The hospital's Emergency Department did not provide services of an appropriate standard to Mrs B. In particular:

- *On 7 July 2002 staff:*
  - *did not appropriately assess Mrs B*
  - *did not appropriately diagnose Mrs B's condition.*

- *On 15 July 2002 staff:*
  - *did not appropriately assess Mrs B (including performing a CT brain or MRI scan)*
  - *did not appropriately diagnose Mrs B's condition.*

- *On 18 July 2002 staff did not appropriately respond to Mrs B's failure to improve.*

On 1 September 2003, on the basis of information received from the hospital, the investigation was extended and notified as follows:

Dr C did not provide services of an appropriate standard to Mrs B. In particular, on 7 June 2002 Dr C:

- *did not appropriately assess Mrs B*
- *did not appropriately diagnose Mrs B's condition.*

Names have been removed to protect privacy. Identifying letters are assigned in alphabetical order and bear no relationship to the person's actual name.

Dr D did not provide services of an appropriate standard to Mrs B. In particular, on 15 June 2002 Dr D:

- *did not appropriately assess Mrs B (including performing a CT brain or MRI scan)*
- *did not appropriately diagnose Mrs B's condition.*

Information reviewed

- Information received from:
  - Dr G, chiropractor
  - Dr E, general practitioner
  - Dr H, Clinical Director of the Emergency Department of the hospital
- The Hospital's guidelines for CT scans
- Mrs B's clinical records from Dr E and the hospital
- Independent expert advice from Dr Chip Jaffurs, an emergency medicine specialist

Information gathered during investigation

Background

Mrs B, aged 54 years in June 2002, had a medical history of asthma, emphysema, osteoarthritis and migraine. In April 2002 she was seen at the Respiratory Outpatient Clinic by a registrar in relation to her asthma and emphysema. The registrar noted in his letter of 19 April to Dr E, Mrs B's general practitioner, that her emphysema was largely well controlled but she had a slightly elevated blood pressure of 152/78. He recommended that this should be monitored closely with a view to starting her on anti-hypertensive therapy.

Admission to Emergency Department – 7 June 2002
At 1.05am on 7 June 2002 Mrs B was admitted to the hospital's Emergency Department having presented with a headache, sore neck and vomiting. The admission note records that she had an acute onset of headache that evening, and woke with pain and visual disturbance in both eyes. Mrs B was recorded as "holding her head" as a result of the head pain, but was noted to be "not distressed" with the pain. She was given a triage category of Code 3.

Triage coding is the categorising of patients within an Emergency Department according to their presenting signs and symptoms to assess the immediate severity of their condition, illness or injury. The triage coding is designed to ensure that the patient is examined and treated within a sequenced time-frame commensurate with his or her particular need. The codes are numbered 1 to 5. Category 5 indicates that the condition is less urgent and the patient may wait for up to 120 minutes for assessment and treatment. A Category 3 patient's condition is such that the patient is able to wait for 30 minutes to be assessed and

treated. A Category 1 patient has a life-threatening condition and is in need of immediate aggressive intervention.

Mrs A informed me that although her mother suffered from migraine, the head pain she suffered when she was admitted to the Emergency Department on 7 June 2002 was not typical. Mrs A was concerned that the emergency department staff did not consider a subarachnoid haemorrhage as the cause of her mother's headache, or that a CT scan was appropriate.

Dr C examined Mrs B within ten minutes of her arrival in the Emergency Department. She was alert and able to provide a history of the onset of her headache and the accompanying symptoms. Mrs B denied having any unsteadiness on her feet or any double vision. Dr C recorded that her headache was severe but of a similar type to migraines she had previously experienced. He noted that she did not describe the onset of her headache as "like being kicked in the back of the head". Mrs B did not have a temperature, and her neurological examination was normal. Her Glasgow Coma Scale (GCS, taken to assess level of consciousness/mental status) was 15/15, and her pupils were equal and reactive to light and accommodation, which was normal. Dr C also tested Mrs B's muscle power and reflexes and found that these signs and her gait were normal. He noted that she had trouble putting her head onto her chest but she reported that she had longstanding arthritic neck problems and this was no worse than usual. Dr C noted that her blood pressure was raised at 200/100. Her chest showed no sign of infection.

Mrs B was given paracetamol and Imigran to control her headache, metoclopramide to control her nausea, and two small doses (2mg) of morphine for the pain. At 2am her blood pressure had settled to 160/60. Dr C stated that as her pain had also improved at this time, it was assumed that her hypertension (high blood pressure) was very likely related to the pain.

Dr C informed me that his differential diagnoses included early meningitis, cerebrovascular accident (CVA/stroke) including subarachnoid haemorrhage (SAH) or intracerebral bleed, space occupying lesion, temporal arteritis, tension headache, viral illness or musculo-skeletal headache secondary to neck pain. He said that Mrs B did not have the signs or symptoms of meningitis, and did not have any neurological signs or symptoms or classic history of SAH or other intracerebral event. There was no reason for him to refer her for an urgent CT scan.

Dr C informed me that a high priority headache patient for consideration for CT scan would be one with a headache accompanied by altered vital signs and mental status, with acute double vision or gross neurological abnormality. Mrs B did not have any of these signs on 7 June.

Dr C recorded that his plan was to continue to observe Mrs B and reassess her at a later stage or sooner if her condition changed.

At 6am Dr C reviewed Mrs B and found that she appeared settled although her neck pain remained. He performed a further neurological examination, which was normal, and her GCS remained at 15/15. He advised that he would arrange for the consultant to review her at 8am if her headache did not improve.

Dr C informed me that it is his practice to keep patients who present with headaches of probable migraine type for several hours of observation and to obtain a second opinion if necessary. He was finishing his shift at 8am and so asked Dr F, emergency department consultant, to review Mrs B.

Dr F assessed Mrs B and noted:

> "Sleepy and usually gets sleepy with her migraine. Usually every 5-6 months – typical presentation this time but did see flashing lights. H/A [headache] currently 8/10. Resting – pupils equal and reacting."

He recorded his plan to keep her in hospital to sleep and review her after she had rested.

Mrs B was assessed hourly until Dr F returned in the afternoon with a view to assessing her for discharge. Mrs A informed me that a family member protested to a member of the nursing staff that Mrs B was still unwell when she was cleared for discharge, and that the nurse replied: "Well she can't stay here."

At 2.15pm Dr F noted:

> "Pt [patient] reports being much improved. H/A 'nearly gone'. Diazepam [5mg given at 12.30pm] definitely helped. Neck muscles also improved.
>
> Neurologically – pt alert/orientated
>
> I do not suspect a CVA [cerebrovascular accident]/SAH [subarachnoid haemorrhage]; Acute migraines
>
> Cephalagia [head pain]: Discussed with pt's daughter and pt, both who agree with plan to D/C [discharge] home and F/U [follow-up] GP in 1-2 days.
>
> Rx [prescription] – diazepam"

Mrs B was given 5mg of diazepam at 12.30pm.

The nursing note recorded at 2.30pm noted that although Mrs B was still drowsy from a combination of the after-effects of the migraine and diazepam, she was up and walking satisfactorily. The record states: "Son has arrived to transport home. Script given for Valium. A little nauseous but recovered enough to feel ok to go home."

Assessment by chiropractor

On 9 June Mrs B consulted Dr G, a chiropractor, because of ongoing head and neck pain. Dr G recorded his examination of her. He noted that he had performed thoracic and cervical X-rays, but did not find any evidence of any vertebral body compression fractures. He recommended that if her symptoms persisted she would benefit from a further neurological assessment and an MRI scan.

Dr G informed me that Mrs B's presentation initially was consistent with her history of cervicogenic headaches and was relieved by mobilisation of her upper cervical spine, but he was concerned about the intensity of the headaches that she was experiencing.

When Mrs B consulted Dr G for the second time on 12 June, the intensity of her headache had returned and he was concerned about her. Dr G wrote a letter because he was concerned that her persistent symptoms were being caused by central nervous system damage and recommended that an MRI scan be performed to rule this out. In an open letter to "Dear Dr" dated 13 June, Dr G stated:

> "As you are aware [Mrs B] has been experiencing severe head and neck pain since Friday 7th June 2002. She presented to this clinic on Sunday 9th June with bilateral lower cervical pain, lumbar pain and head pain over frontal and temporal bones.
>
> [Mrs B] has been receiving intermittent treatment at this clinic since August 1999 for pain associated with her severe rotoscoliosis. Over this period she has had several episodes of head pain following strain of her neck. However, there have been no previous episodes of the severe intensity of the head pain as she is currently experiencing."

Admission to Emergency Department – 15 June
Mrs B was assessed in the Emergency Department at 9.26am on 15 June. She complained that her headache had not changed. It was noted that she had been recently seen in the Emergency Department and prescribed diazepam, Voltaren (an anti-inflammatory) and Panadol. Mrs B informed the triage staff that there was something wrong in her head. She was assessed as being alert and orientated.

Dr D, senior emergency doctor, examined Mrs B at 11.24am. He found that she had an elevated temperature of 37.3ºC on admission. He examined her chest, lungs, heart, and abdomen and performed a neurological assessment, all of which were normal. Dr D's diagnosis was of headache, osteoporosis, tenderness over the 6th and 7th thoracic vertebrae and chronic obstructive airway disease (COAD). He ordered an electrocardiograph, chest and spinal X-rays, urine and blood tests. When the results of the tests were returned, Dr D noted that the X-rays showed that Mrs B was suffering from osteoporosis (degenerative spinal disease) with an old wedge fracture of the 7th thoracic vertebra, osteoarthritis of the neck, and COAD. A raised white blood cell count supported his initial diagnosis of a chest infection. The other tests were normal.

Mrs B's condition was monitored and the records show that she continued to have an elevated temperature but was generally comfortable, only experiencing a headache when she moved. Her blood pressure was recorded regularly and found to be moderately elevated, ranging from 180/100 to 140/80. At 5pm she was commenced on oral antibiotics.

Mrs A gave Dr G's letter of 13 June to Dr D. Mrs A said that Dr D read the letter and when he handed it back she asked him: "What is going on with Mum?" He replied that his diagnosis was that she was suffering from migraine. Mrs A believes that Dr D should have ordered further investigation of Mrs B's symptoms as recommended by Dr G.

Dr D informed me:

> "The referral note contained no comments on the neurological status or an examination done on the patient. Although the chiropractor described her headaches as severe, the patient did not grade them as 'very/most severe headaches ever'. This is the standard question of all patients presenting with headaches.
>
> A further neurological assessment was done with NO ABNORMALITIES being found. There were definite respiratory symptoms and signs. … A MRI investigation was not indicated for the investigation of a suspected intra-cerebral haemorrhage (ICH) but may be indicated if other pathology was indicated by neurological assessment – unfortunately during my consultation no abnormal neurological signs were found, and therefore there was no indication for this investigation.
>
> Had any symptoms or signs suspicious of an ICH been present, a CT would have been the appropriate investigation and would have been arranged – unfortunately there was no indication for this at the time of the examination.
>
> At the time that I was employed by [the public hospital's] Emergency Department, the official protocol stated that only in cases of head trauma or where there are neurological symptoms or signs present should a CT scan be performed."

At 7pm Dr D reviewed Mrs B's condition. He found that she was feeling well, had no headache and her chest was better. Mrs B was transferred from the Emergency Department to the Observation Unit. At 11pm her condition was reviewed and as there was no deterioration in her status she was discharged home. Mrs B was not given any instruction for follow-up if her headache returned.

Consultation with general practitioner

Mrs B saw Dr E, her general practitioner, on 17 June to request that he complete a form for her for a disability allowance, and a referral for bone densometry. She told the practice nurse that she had been admitted to the hospital with headaches and was still experiencing headaches. The practice nurse assessed Mrs B's blood pressure as 170/116.

Mrs B told Dr E that she had pain in her neck and lower back. He examined her and found that she had some tenderness in her lumbar/sacral joint. Dr E checked her blood pressure and found that it was elevated at 180/105. He recorded that he prescribed Mrs B bendrofluazide, an anti-hypertensive, and ordered blood tests to assess, among other things, her cholesterol levels. He recorded that she was to return in seven to ten days for review.

The following day (18 June) the results of Mrs B's blood tests were telephoned through to the surgery. Dr E noted the results – her cholesterol level was 6.3, which is elevated – and recorded: "Please ask patient to come to discuss ↑ [raised] lipid [fat in the blood] function."

Admission – 18 June

At 6.50pm on 18 June Mrs B re-presented to the Emergency Department. The triage assessment noted that she was complaining of nausea, lethargy, sharp frontal and parietal

(back of the head) pains and of seeing "flickery lights". The triage nurse noted that Mrs B had been unwell for three days and had been seen at the Emergency Department three times, and that there was a family history of headaches and subarachnoid haemorrhage. It was noted: "Family want CT scan." Mrs B was triaged as Status 3.

When Mrs A arrived at the Emergency Department she found her mother sitting in the whanau room with her older sister. Mrs B was distressed and wanting to lie down. Mrs A encouraged her mother to lean against her. Shortly afterwards a nurse came to collect Mrs B and settled her into a bed. Mrs A recalled that her mother asked for a cold compress for her head to relieve the pain just before she called out: "Somebody help me." Almost immediately she lost consciousness. Mrs A called for a doctor and Mrs B was taken to the resuscitation room.

The records show that Mrs B was assessed at 7.15pm by an emergency department registrar, who noted:

"Headache x – 10 days
seen ED x2 ? migraine
tonight worse pain at home
shortly after arrival in ED, brief period of collapse
No apnoea [respiratory arrest] or cardiac arrest
No seizure activity noted
BP 220/110 GCS 3

PMH [previous medical history]
1) CORD – recent bronchitis
2) Migraine H/A [headache] (different from recent H/A?)

F/S [family situation] Lives with daughter in […]
Independent with ADLs [activities of daily living]
* mother died of SAH [subarachnoid haemorrhage]"

Mrs B's condition improved and her GCS was reassessed at 14/15. A full physical and neurological assessment was performed. The ED registrar noted his findings and Mrs B's recent history of recurrent severe headache, which had increased in severity and resulted in collapse, and his differential diagnosis of possible seizure, subarachnoid haemorrhage, neoplasia or migraine.

A CT scan performed at 10.05pm found that Mrs B had suffered an extensive subarachnoid haemorrhage.

At 11pm Dr G, medical registrar, noted that Mrs B had a second episode of unresponsiveness preceded by headache, deteriorated rapidly to GCS 3. He discussed her condition with a neurosurgical consultant, who recommended an intravenous infusion of phenytoin in case of possible epilepsy. He suggested a repeat CT scan to assess whether there had been a further bleed. Mrs B's GCS remained at 3/15 and the decision was made to intubate her (introduce a tube to maintain her airway) before she had a second CT scan.

The second CT scan showed that there had been an increase in the haemorrhage on the right side of Mrs B's brain. The neurological consultant asked Dr G to observe her over the next 24 to 48 hours and said that if she improved she would be a candidate for surgery.

Mrs B was transferred to the Intensive Care Unit and prepared for transfer to a Neurosurgical Unit of a city hospital.

The city hospital
Mrs B was admitted to city hospital's Department of Critical Care (DCC) at 2am on 19 June. The initial assessment at DCC was encouraging. Mrs B had an angiogram at 10am on 19 June, which showed an aneurysm. The following day she underwent surgery to have the aneurysm clipped.

The operation went well and on 22 June Mrs B was well enough to be discharged to the neurosurgical service for aftercare. However, on 23 June her condition deteriorated. Mrs B was readmitted to DCC and died on 24 June 2002.

Subsequent events

Meeting with family
A meeting was held on 9 October 2002 between Mrs B's family, Dr H, newly appointed Clinical Director of the Emergency Department at the hospital, and the Customer Services Manager, to discuss the family's concerns about the standard of care provided to Mrs B. Minutes were taken of the meeting and provided as part of the hospital's response.

Dr H went through the medical notes with the family to explain the decisions made by the doctors who assessed Mrs B on the three occasions she presented at the Emergency Department.

The family informed Dr H and the Customer Services Manager that they felt that Mrs B was let down, and that what she and the family said when she presented to hospital was not taken seriously. They asked if anything about the care provided to their mother should have been done differently.

Dr H advised me:

> "There is no way of ever telling with any degree of certainty whether the critical presentations were missed opportunities. But as was stated by [Mrs B's] family when I met them, if we had scanned [Mrs B] at least on the second presentation we would not be discussing her case today regardless of what it demonstrated.
>
> His records of the meeting and lessons to be learnt record his view that 'barriers exist about scans – we would like to up the anti in terms of scans'."

Media involvement
Mrs A was dissatisfied with the outcome of the meeting with the hospital staff on 9 October 2002, and informed the Sunday newspaper:

> "We feel extremely let down by our local emergency department and would like for things to improve so that other families don't have to suffer the same consequences."

She said that the family wanted better communication between family members and emergency department staff.

The hospital manager informed the Sunday newspaper:

> "Since these events occurred, there have been a number of improvements with staffing levels being increased, the staff mix reassessed, protocols reviewed and various issues discussed with our board members and the Ministry of Health. However, we are still auditing and reviewing a range of matters associated with emergency services."

Independent advice to Commissioner

The following independent advice was obtained from Dr Chip Jaffurs, an emergency medicine specialist:

> "I have been asked to provide expert advice on the Emergency Department treatment received by [Mrs B], age 54 at [the public hospital] in June 2002. I have read and will follow the Guidelines for Independent Advisors dated September 2003. 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 the Director for Emergency Medicine for Whangarei Hospital.
>
> I have discussed previously with your office that I have a personal as well as professional friendship with Emergency Department Consultant [Dr F].
>
> I have reviewed all documents included with your letter of 2 February 2004. A case summary follows.
>
> 7 June 2002 the Emergency Department doctor's notes are missing from the copy supplied by the family. The notes are present in [the hospital's] copies, but are difficult to read. Much of the information must be cleared from [Dr C's] letter. The triage note shows arrival at 0105 hours, triage code 3, complaint of headache, sore neck, vomiting, usual visual disturbance, history of migraine headache and concludes 'but not typical' without explaining why. She is given paracetamol and seen 10 minutes later by [Dr C]. He establishes that this headache is similar to previous migraine headaches though more severe. She is treated with antiemetic and analgesia. She declines further analgesia when rechecked at 0600 hours. Another House Officer notes at 0815 hours that the pain is still

present with minimal improvement, though she is happy to go home with voltaren, which she usually takes. She tells the nurse that she has a 'kink' in her neck, but the headache has resolved just prior to this. At 0858 hours Emergency Department Consultant [Dr F] confirms features of migraine headache without resolution of headache. She is reassessed later in the morning with focus again on neck pain. At 1415 hours her headache has resolved after diazepam, a muscle relaxant. He specifically considers and discounts subarachnoid hemorrhage. A plan is formulated with the family for her to go home with GP follow up.

The only investigation I would consider missing is a sedimentation rate and white blood cell count. Elevation in an older woman suggest Giant Cell Temporal Arteritis. I would not have ordered a CT scan or lumbar puncture.

9 June 2002 [Mrs B] appears to have attended the rooms of [Dr G]. Treatment details are recorded, though difficult to read in the hand written notes.

11 June 2002 [Mrs B] appears to have attended the rooms of [Dr G]. Treatment details are recorded, though difficult to read in the hand written notes.

12 June 2002 [Mrs B] again attends the rooms of [Dr G], Chiropractor. Severe intensity of head and neck pain is noted. Treatment focuses on spinal disorder and refers to xrays of the cervical and thoracic spine obtained 11 June 2002. Attention in several documents submitted to me focus on [Dr G's] final statement 'If the intensity of her symptoms persist she would benefit from further neurologic assessment and MRI scan'. MRI scan is not used for first line evaluation of subarachnoid hemorrhage or headache. This statement most likely suggests MRI of the spine, which would be the next logical step in evaluation of a spinal problem. The letter included in submitted documents is dated June 13 2002 but refers to the June 11 and 12 visits. It is unclear who the letter is to or if she was to visit the hospital in any formal manner.

14 June [Mrs B] again attends the rooms of [Dr G].

15 June [Mrs B] presents to [the] Emergency Department. She arrives at 0926 hours, is triaged to category 3. Triage notes quote the patient as saying something is 'wrong in head'. It is unclear who writes an initial note for an encounter at 0945 hours. The note refers to 'ongoing headache, nausea, decreased food and fluids' in the history. A note follows at 1126 hours, apparently a doctor's notes, with a detailed history and physical exam. Headache that is getting worse is noted for 3 days, duration of one week associated with painful stiff neck and chest pain. She feels weightless, short of breath, is having nightsweats and coughing. She has a slightly elevated temperature of 37.3, crepitations in her lungs. She has a complete physical exam including a well documented normal neurologic exam. She has percussive tenderness over her spine. The differential diagnosis includes headache possibly due to an infective process in the chest or sinuses (?), or hypertension. Also included are scoliosis and chronic lung disease, query infection or pulmonary embolus. She is xrayed and found to have thoracic spine wedge fracture and no focal abnormality in her chest. She is febrile at 38° at midday. She is given paracetamol. Both her temperature and blood pressure normalise. Her headache

resolves. She has a meal. She is noted by nurses and doctor to be improved after staying in the observation area for 2 hours. She is discharged on antibiotics for a chest infection at 2100 hours.

17 June 2002 [Mrs B] attends the rooms of [Dr E]. She is still experiencing headaches. The notes feature pain in her neck and lower back, some tenderness there, hypertension, paperwork for disability and tests for osteoporosis. She is not referred urgently.

18 June 2002 [Mrs B] returns to the Emergency Department at 1850 hours, initially triaged 3, changed to 2. The triage nurse records a family history of subarachnoid hemorrhage (SAH). The first note from a doctor is timed 1915 hours, after she has collapsed. GCS is 3 but improves to 14. CT scan shows right sided SAH. She receives morphine. She has another episode of GCS 3 and does not improve, is sedated and intubated, CT'ed again which shows worsening of the SAH. She is transferred to Neurosurgery at [the city hospital]. She undergoes surgery to clip an aneurysm on the right side. Unfortunately she developed diffuse cerebral vasospasm post operatively. She was declared brain dead 24 June 2002.

In response to your questions on page 3,

1. What is the standard practice for assessing patients presenting with severe headache?

Evaluation of headache requires a careful history. Comparison with previous headaches is important, particularly a prior history of migraine headaches. Patients often rate each Emergency Department visit's headache as 'severe' or 'worse than usual' but the traditional red flag 1 is the statement 'this is the worst headache ever'. Onset of headache must be explored as subarachnoid hemorrhage is sudden or 'like a lighting strike'. Symptoms may be elicited for infection, injury, arthritis, inflammation or glaucoma. Examination should focus on abnormal neurology, musculoskeletal and arterial tenderness, signs of infection and eye abnormality particularly as suggested by the history.

2. Was that practice followed on 7 June 2002? Was [Dr C's] assessment and treatment of [Mrs B's] symptoms on her admission on 7 June appropriate? If not, what assessments and investigations should have been undertaken?

Yes. The Emergency Department record and letter from [Dr C] clearly described a woman with recurrent migraine headache and arthritic neck pain. No red flags are elicited despite appropriate questioning and examination. She improves with modest medication, she is observed for resolution of her headache.

3. What is the standard practice for assessing patients presenting with persistent severe headache?

Headache may arise from many causes. Patients presenting with severe, persistent unremitting headache, need a comprehensive history, physical and appropriate tests to

identify the cause. A CT scan of the head, a lumbar puncture should be considered if the headache is unusually severe, sudden onset, described as 'the worst ever', associated with loss of consciousness, neurologic abnormality, previous subarachnoid hemorrhage or family history of the same. Patients with an established diagnosis of migraine headache do not require CT scanning unless they meet one of these qualifications.

4. Was [Dr D's] assessment of [Mrs B's] symptoms on 15 June 2002 appropriate? If not, what else should he have done?

[Dr D] thoroughly evaluated [Mrs B] at her second Emergency Department visit, except that no family history is recorded. Pertinent features of the headache are not completely addressed in the notes but [Dr D] adds in his letter that 'this was not the most severe headache ever'.

5. Should a CT scan have been performed on [Mrs B] on 15 June 2002?

Yes, a CT scan, and lumbar puncture if the CT scan was negative should have been performed. She was returning to the Emergency Department for a headache. She had multiple visits to another Health Care Practitioner for headache. Her mother died from subarachnoid hemorrhage. The headaches, despite resolving or relenting between visits were described as unusually severe.

6. Was [Dr D's] provisional diagnosis reasonable in the circumstances?

Yes, in part. In view of fever, cough and history of lung disease, she very likely had a chest infection, perhaps causing headache. In my opinion, an opportunity to diagnose a leaking cerebral aneurysm was missed.

7. What information should [Dr D] have given to [Mrs B] or her family?

[Mrs B's] headache resolved prior to her discharge from the Emergency Department. A prudent Doctor would have advised 'If the headache returns, come back to the Emergency Department'.

8. Was the assessment of [Mrs B] appropriate when she presented on 18 June 2002 for the third time reporting severe and persistent headache? If not, what should have been done in the circumstances?

Yes. [Mrs B] was managed appropriately on 18 June 2002 throughout her course at [the hospital]. There were no omissions of significance in her care.

9. Are there any other professional, ethical and other relevant standards that apply and, in your opinion, were they complied with? Are there any other comments you consider relevant to this case that may be of assistance?

The evaluation of headache in the Emergency Department seems clearcut if one reads any textbook or standard literature on Emergency Medicine. Even with a prior history of migraine or other 'benign' forms of headache, certain questions are customary to ask.

- Is the headache different?
- Did you lose consciousness, even briefly?
- How did it start?
- Is this the worst headache?
- Are there any new or unusual symptoms or signs on physical exam?
- Is there a family history of SAH or aneurysm?

Red flags alluded to earlier, though not all scientifically proven leads one to intervene. In most cases that means head CT imaging or lumbar puncture. The head CT protocol referred to in materials submitted appears to deal only with Trauma.

Two features of [Mrs B's] headaches should have raised red flags. The first is the persistent severe nature of her headache for which she had multiple health care provider visits. The second is a family history of mother dying from SAH. One must wonder why the family history does not come out in any of the medical notes before the last visit.

The issue of communication is raised in the family's complaint. The medical records demonstrate extensive and repeated attempts by GP, Chiropractor, and Emergency Department Physicians to evaluate and treat [Mrs B]. In every case she seems to improve with treatment. This is often the case with cerebral aneurysm. The aneurysm itself may cause pain or symptoms. The aneurysm may have small leaks or 'sentinel bleeds' causing transient severe headache. Headaches of this sort in a migraine sufferer are notoriously difficult to diagnose. The family history of SAH is crucial to decision making in this case. When was this piece of information first available from the family or patient? Were they asked at the first or second visit, or was this recalled only later on?

CT scanning sounds easy to get, but is not in most New Zealand Emergency Departments. Resistance from Radiologists, particularly after hours, lays down behaviour patterns in which medical staff try to avoid ordering CT scans, especially if a patient improves with treatment.

[Dr H's] comments suggest such a situation exists at [the hospital]. This must be resolved by negotiation between the Emergency Department and Radiology. I suspect it is an institutional problem. Our institution is currently engaged at the Clinical Director and Executive level in developing a policy for 'Declined Requested Examinations'. Issues of documentation and accountability must be addressed.

Written discharge instructions, perhaps with an information sheet on Headache, including danger signs are now feasible for New Zealand Emergency Departments. Was there any written discharge advice at the first or second visits? Such documents may provide a clear means of focusing the patient's and family's observations. In this difficult scenario, improved communication by any means may have secured an earlier diagnosis of SAH.

…

Attachments:

1. Medical Protective Society. New Zealand Casebook 3 August 2003. 'Diagnosing Acute Headache' red flags page 13.
2. Emergency Medicine Tintinalli 4th Edition McGraw and Hill page 1011.
3. Discharge Instruction Sheet and Headache."

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.

Opinion: No breach – Dr C

Mrs A was concerned that Dr C did not suspect that Mrs B was suffering from a subarachnoid haemorrhage when she presented at the Emergency Department on 7 June 2002 with an atypical headache, and did not order a CT scan, which would have diagnosed the SAH.

Right 4(1) of the Code of Health and Disability Services Consumers' Rights (the Code) affirms that every patient has the right to have services provided with reasonable care and skill.

Mrs B was admitted to the Emergency Department (ED) at 1.05am on 7 June 2002 because she had been woken by a severe headache and visual disturbances in both eyes. When she was triaged at ED Mrs B reported that as well as the headache, she had a sore neck and had vomited. She reported that she had a history of migraines, but this headache was not typical, although she did not explain the difference.

Dr C assessed Mrs B within ten minutes of her arrival at the department. On examination Mrs B was alert and able to answer questions about her condition. Dr C performed a comprehensive neurological examination and found that she was not unsteady on her feet or reporting any double vision. He established that the headache was similar to previous headaches she had experienced, although more severe. He specifically recorded that she did

not describe the onset of her headache as like "being kicked in the head by a horse". Dr C provided Mrs B with medication for pain and nausea, and admitted her for observation.

When Mrs B was checked at 6am she declined further analgesia, and when she was reviewed by the house surgeon at 8.15am, she reported a residual headache. At 8.58am Mrs B was seen by Dr F, the Emergency Department consultant, who specifically considered and discounted subarachnoid haemorrhage and agreed with the provisional diagnosis of migraine headache. Later that morning Mrs B's neck pain was assessed. At 2.15pm she was reviewed and reported that her headache had settled after taking the muscle relaxant diazepam. She was happy to go home and be followed up by her general practitioner.

My independent emergency medicine expert advised that evaluation of headache requires taking a careful history. Comparison with previous headaches is important, particularly a prior history of migraine headaches. Patients often report the headache as severe, but the traditional red flags are the statements that this is the worst headache ever, and that the onset was very sudden, like a lightning strike.

My expert considered that Dr C's assessment and treatment of Mrs B's symptoms on 7 June were appropriate. Dr C clearly described a woman with recurrent migraine headache and arthritic neck pain. Despite appropriate questioning and examination no red flags were raised, and Mrs B improved with modest medication after a period of observation. My expert would not have ordered a CT scan or lumbar puncture at this visit. The only investigation that he considered Dr C missed was a sedimentation rate and white blood cell count, which if elevated could have indicated giant-cell temporal arteritis, a chronic vascular disease involving the temporal arteries.

Accordingly, in my opinion, Dr C provided services to Mrs B with reasonable care and skill on 7 June 2002, and therefore did not breach Right 4(1) of the Code.

Opinion: Breach – Dr D

Mrs B presented, for the second time, at the Emergency Department at 9.26am on 15 June 2002, reporting that nothing had changed in regard to her headache and that there was "something wrong in her head". She presented with a persistent severe headache for which she had had multiple visits to various health professionals.

Mrs A gave Dr D the letter written by Dr G, chiropractor, following Mrs B's consultations in early June 2002. Dr G's letter recorded his concern about the "severe intensity" of the head pain she was experiencing, noted that the cause of her persistent symptoms might be central nervous system damage, and suggested an MRI scan to rule this out.

Dr D, who had examined Mrs B on her admission to hospital on 7 June, considered that Dr G's letter contained no information about Mrs B's neurological status or whether a

neurological examination had been performed; although Dr G described Mrs B's headaches as severe, he did not describe them as the "most severe ever" (a red flag indicator).

Dr D checked Mrs B's chest, lungs, heart and abdomen and assessed her neurologically. He found tenderness over two of her thoracic vertebrae and an elevated temperature of 37.3°C. Her blood pressure was recorded and found to be mildly elevated, ranging from 180/110 to 140/80.

Dr D ordered an ECG, chest and spinal X-rays, and urine and blood tests. The results of these tests showed that Mrs B had degenerative spinal disease, osteoarthritis of the neck and chronic chest problems. Mrs B had a raised white cell count, which led Dr D to an initial diagnosis of a chest infection. Mrs B was commenced on oral antibiotics at 5pm.

Dr D stated that no neurological abnormalities were found and therefore there was no indication for a CT scan of Mrs B's head.

My independent expert advised that headache may arise from many causes. Patients presenting with severe, persistent unremitting headache need a comprehensive history, physical examination and appropriate tests to identify the cause. My expert stated that evaluation of headache in the Emergency Department literature is clearcut. Even with a prior history of migraine or other "benign" forms of headache, certain questions are customary. They are:

- Is the headache different?
- Did you lose consciousness, even briefly?
- How did it start?
- Is this your worst headache ever?
- Are there any new or unusual symptoms or signs on physical examination?
- Is there a family history of subarachnoid haemorrhage or aneurysm?

My expert stated that although Dr D thoroughly evaluated Mrs B at her second Emergency Department visit, pertinent features of the headache were not completely addressed in the notes and Dr D did not record any family history. This was a significant failure. Taking a careful patient history and asking about any relevant family history is a basic and essential step in good clinical decision-making. Dr D failed to elicit the very relevant fact that Mrs B's mother had died of a subarachnoid haemorrhage.

In a migraine sufferer, headaches caused by cerebral bleeds are notoriously difficult to diagnose. In light of the fever, cough and history of lung disease, Mrs B very likely had a chest infection, perhaps causing the headache, but my advisor commented that "an opportunity to diagnose a leaking aneurysm was missed". Arranging a CT scan from the ED, particularly after hours, is not easy and often influences a doctor's decision not to order a scan. However, given that Mrs B was returning to the Emergency Department with a headache, had had multiple recent visits to other health professionals for headaches, and that they were described as unusually severe, Dr D should have ordered a CT scan on 15 June and, if the scan was negative, performed a lumbar puncture. My expert also commented that on discharge, a prudent doctor would have advised Mrs B to return to the Emergency

Department for further review if her headache returned. There is no evidence that this occurred.

In my opinion, by not obtaining a full history, and by not ordering a CT scan, Dr D did not provide services to Mrs B with reasonable care and skill on 15 June 2002, and therefore breached Right 4(1) of the Code.

Opinion: No breach – The Public Hospital

My expert advisor commented that Mrs B was managed appropriately on 18 June 2002 when she re-presented to the hospital. I accept my expert advice. In my opinion, staff at the public hospital did not breach the Code in relation to their care for Mrs B on 18 June 2002.

Opinion: Breach – The Public Hospital

Vicarious liability
Under section 72(2) of the Health and Disability Commissioner Act 1994, employers are vicariously liable for ensuring that employees comply with the Code. Under section 72(5) it is a defence for an employing authority to prove that 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 D was employed as a senior emergency doctor at the Emergency Department. In June 2002, the hospital had guidelines for CT scanning that were silent on patients presenting with headache. Dr D, in response to my investigation, noted the lack of guidance in the protocols, stating that the protocols provided that only in cases of head trauma or where neurological signs or symptoms were present should a CT scan be performed.

Dr H, in his meeting with the family, commented that "barriers exist about scans". My expert commented that CT scanning is not easy to get in most New Zealand emergency departments, and there is sometimes resistance from radiologists to performing such examinations after hours, which influences the decisions of medical staff ordering the scans, particularly if the patient improves with treatment. Dr H's comments indicate that problems obtaining CT scans existed at the hospital.

In the absence of guidelines regarding the criteria for CT scanning of patients presenting with persistent headache, and given the evidence that there were barriers to obtaining CT scans, I am not satisfied that the hospital took reasonable steps to ensure that Dr D provided Mrs B with services with reasonable care and skill. In these circumstances, the public hospital is vicariously liable for Dr D's breach of the Code.

Actions taken

CT scans
Dr H, Clinical Director of the hospital's Emergency Department, advised that since having Mrs B as a patient, the Emergency Department and the Radiology Department have worked together very closely to lower the threshold for requesting and performing CT scans for a variety of conditions in the emergency setting. Dr H also advised that anyone who attends the Emergency Department with a headache must now have a documented reason for not having a CT scan or lumbar puncture.

Information on headache
My advisor commented that an information sheet on Headache, including danger signs, to be given to patients on discharge, may help focus the patient's and family's observations when the patient goes home. The hospital has amended its information sheet on Headache to incorporate danger signs and guidelines pertaining to headache and trauma, and have addressed the CT scan issues.

Apology
In response to my provisional opinion, Dr D provided a written apology for Mrs B's family.

Follow-up actions

- A copy of this report will be sent to the Medical Council of New Zealand.
- A further copy of this report, with identifying details removed, will be sent to the Australasian College of Emergency Medicine and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.