Radiologist – Dr B

Public Hospital

A Report by the

Health and Disability Commissioner

(Case 03HDC14447)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Parties involved

Ms A	Consumer
Dr B	Provider / Senior Radiologist
Dr C	Chiropractor
Dr D	General Practitioner
Dr E	Clinical Leader Radiology
Public Hospital	Provider

Complaint

On 26 September 2003 the Commissioner received a complaint from Ms A about the services provided to her at a Public Hospital Emergency Department. The following issue was identified for investigation:

Whether the Public Hospital provided services of an appropriate standard to Ms A on 26 May 2003. In particular, whether the response to Ms A's presenting symptom, of pain after a fall, was appropriate.

An investigation was commenced on 12 November 2003.

On 26 March 2004 the investigation was extended to include the following issue:

Whether Dr B provided services of an appropriate standard to Ms A on 28 May 2003. In particular, whether his radiology report dated 28 May 2003, reporting "no fracture identified", was adequate and appropriate.

Information reviewed

- Information from Ms A
- Information from Dr B
- Information from Dr C
- Information from Dr D
- Information from the Public Hospital
  - Ms A's medical records
  - information from Dr E

Independent expert advice was obtained from Dr Peter Gendall, diagnostic radiologist.

Information gathered during investigation

Subsequent to a fall on 26 May 2003, Ms A presented to the Emergency Department of the Public Hospital, via ambulance, at 7.27pm. Records received from an ambulance service read:

> "Provisional diagnosis: ? # [fracture] R hip/bruising R buttock … Hx [history] walking down stairs in dark + fell on last three steps, sliding down to landing. Landing on R buttock."

Ms A was triaged at 7.36pm by a nurse. Ms A's emergency service triage record notes that she complained of right-sided buttock pain, and states "walking on scene".

An examination by the attending doctor revealed that Ms A was unable to weight bear, and was experiencing pain on all passive movements of her right hip. Additionally, Ms A was tender over her 4th and 5th ribs laterally. At 11.41pm, the attending doctor ordered an X-ray be taken of Ms A's pelvis. This procedure was performed by a radiographer between 11.53pm and 12.01am. The X-ray reads: "27.05.03 00:03". Dr E, Clinical Leader of Radiology Services, has advised me:

> "It would have been normal practice for the film to be returned to the Emergency Department after the procedure for initial review by the requesting doctor."

The anterior-posterior (A-P) X-ray of Ms A's pelvis was not thought by the attending doctor to reveal an abnormality. She prescribed Ms A diclofenac for pain relief and advised her to return home. Ms A departed from the Emergency Department at 12.19am on 27 May.

Subsequently, the X-ray of Ms A's pelvis was read by Dr B, Senior Radiologist, on 28 May 2003. His final report was authorised on 4 June 2003, and indicates that no fracture was identified. It also suggests that a lateral view of Ms A's right hip would be beneficial, in the event that further concerns were raised about her condition. Dr B stated:

> "The lateral X-ray of the right hip area was suggested as possibly being of value because of the suggestion that the symptoms were in this area. It is customary to obtain radiographs in two planes, generally at right angles to each other as an examination in one plane may not show a fracture that is present."

However, Dr E advised me:

> "Even if this additional view were obtained, it would not have shown the fracture that was eventually detected on the left side of the pelvis, as this area is not included on a lateral view of the right hip."

On 16 June 2003, Ms A presented to the clinic of Dr C, chiropractor. Ms A complained of pain in the region of her left groin. On examination, Dr C found that Ms A was experiencing difficulty walking. She considered, as part of her differential diagnosis, that Ms A may have sustained a pelvic fracture. Consequently, Dr C requested a copy of Ms A's pelvic X-ray, taken on 26 May 2003. She advised Ms A to use rest and ice to control her symptoms, and to return on 18 June 2003.

On 18 June, Ms A attended a second consultation with Dr C. Dr C had, by this time, received an X-ray report from the Public Hospital in relation to Ms A's pelvis. However, she had not received the requested X-ray. Dissatisfied with the X-ray report she had received, Dr C decided to take further X-rays of Ms A's pelvis. Although Dr C stated that these X-rays were taken on 18 June, her notes are unclear on the matter and the X-rays read: "003 June 16". According to Dr C, the X-rays suggested a pelvic fracture. Dr C referred Ms A to a general practitioner at a Medical Centre, on this basis. Her referral, dated 19 June 2003, reads:

> "I have taken a spot projection of her [Ms A's] pubic bones (A-P) in the erect position. I have concerns over an apparent disruption of the normal contour of the left superior pubic ramus. Given her history, and that the pain has only eased minimally over the last three weeks, I felt it prudent to refer her to you for a second opinion."

Dr C accompanied her referral with the X-rays taken by her. She telephoned the Medical Centre, about Ms A's condition, on 20 June 2003. Her call was answered by a nurse at the Medical Centre. After discussing Ms A's condition with Dr C, the nurse scheduled an appointment for Ms A to be reviewed by Dr D, general practitioner.

Dr D stated that the films received from Dr C clearly reported a pelvic fracture. Her diagnosis of Ms A during the consultation on 20 June was consistent with these findings. Dr D's notes indicate that she discussed Ms A's fractured pubic ramus with an orthopaedic surgical registrar. According to Dr D, the registrar advised that no further treatment could be provided to Ms A. Consequently, Dr D prescribed Ms A pain relief and arranged for ACC to provide her with home help and transport assistance.

Subsequently, Dr D referred Ms A for an X-ray of her pelvis on 17 July 2003 at a Private Hospital. The purpose of this referral was to monitor the healing of her fracture. Ms A's X-ray was read by a radiologist. His report, dated 17 July 2003, reads:

> "Indication: previous fracture, check healing; findings: there is a displaced fracture through the left superior and inferior pubic rami. There is evidence of new bone formation."

Independent advice to Commissioner

The following expert advice was obtained from Dr Peter Gendall, diagnostic radiologist:

"I have been asked to provide an opinion to the Commissioner on case number 03/14447. I have read and agree to follow the Commissioner's Guidelines for independent advisors.

Summary of my Qualifications, training, experience:

MBChB Otago 1977, FRANZCR 1985

Fellowship in Musculoskeletal Radiology University of Iowa 1991-92

Since 1992 the majority of my working time has been in subspecialty practice of musculoskeletal radiology.

Supporting Information

Letter of complaint, from [Ms A], dated 23 September 2003 (p1-2).
Letter from [Ms A], enclosing further information, dated 16 January 2004 (p6-11). Including:
- information from ACC (p7-9)
- two X-rays taken by [Dr C], dated 16 June 2003;
- two X-rays taken at [the Private] Hospital, dated 17 July 2003; and
- two further X-rays taken at [the Private] Hospital, dated 31 October 2003.

Action note detailing the recollections of [Ms A], dated 15 January 2004 (p12).
Response from [Dr B], dated 1 April 2004 (p13-14). Including:
- [the attending doctor's] X-ray request form (p15).

Responses from [Dr E], Clinical Leader Radiology Services, dated 14 April and 9 December 2003.
Response from […] Clinical Director Emergency Services, dated 23 December 2003.
Medical records received from [the Public Hospital] (p22-30). Including:
- 1 X-ray of [Ms A's] pelvis, dated 27 May 2003.

Action notes detailing the recollections of [Dr C], dated 17 February and 16 January 2004 (p31, 38).
Response from [Dr C], dated 27 January 2004 (p32-37. Including:
- her report to [a general practitioner], dated 19 June 2003 (p34)
- her clinical records (p35-37).

Action note detailing the recollections of [Dr D], dated 31 March 2004 (p39).
Response from [Dr D], dated 4 February 2004 (p41-55). Including:
- [Dr D's] clinical records (p42-55).

6 X-rays received from [Ms A], including:
- two X-rays taken by [Dr C], dated 16 June 2003;
- two X-rays taken at [the Private] Hospital, dated 17 July 2003; and
- two X-rays taken at [the Private] Hospital, dated 31 October 2003.

Referral instructions:

1. *Does the X-ray of [Ms A's] pelvis, dated 27 May 2003, indicate fractures of the left superior and/or inferior pubic rami?*

2. *Please comment on whether the radiology report written by [Dr B], dated 28 May 2003, was adequate and appropriate.*

3. *Please comment on the likelihood that [Ms A's] fracture was sustained on 26 May 2003, given that she complained of right sided pelvic pain on that date.*

4. *Do the investigations into [Ms A's] condition appear to have been unduly influenced by her complaints of right sided pelvic pain?*

5. *Are there any other matters that you consider should be brought to the Commissioner's attention?*

I have been provided with the following radiographs:

1. AP X-ray of the pelvis taken at [the Public] Hospital 27 May 2003

2. Chiropractic X-rays of Lumbar spine and pelvis (AP views only) these X-rays are dated 16 June 2003 and have the patient's name on them but there is no indication of the practice at which these were obtained.

3. AP Pelvic and coned pubic arch views obtained at [the Private] Radiology [Clinic] on 17 July 2003 and 31 October 2003.

I have also been provided with notes and reports as detailed in appendix 1.

- The X-ray of 27 May 2003 shows a subtle asymmetry in the superior ischiopubic rami with apparent slight angulation of the left ischiopubic ramus medially. A subtle linear lucency transgresses superior and inferior cortices of this left ischiopubic ramus very close to the pubis. There is no sign of any other abnormality, in particular there is no evidence of a fracture about the right hip or in the right side of the pelvis.

- The chiropractic X-rays of 16 June 2003 show two fractures of the left superior ischiopubic ramus with interruption of cortices at the junction of this ramus and the pubis and a fracture of the medial ramus about 1.5cm lateral to the junction of left pubis and ischiopubic ramus. There is now some sclerosis throughout the body of the pubis on the left. Vague lucencies are apparent in the ischiopubic synchondroses bilaterally. No other abnormalities are shown on these films.

- [The Private Radiology Clinic] X-rays of 17 July 2003 show healing fractures of the left pubis and left superior ischiopubic ramus with more clearly evident lucent fracture lines and surrounding sclerosis and periosteal reaction about these fractures. These X-rays have been obtained with significantly different angulation to the earlier X-rays (probably a 'straight ray' rather than the slight cranial angulation of the [Public] Hospital film). Small 'bumps' are noted on these films over the superior surfaces of the ischipubic synchondroses bilaterally (inferior ischiopubic rami) these are associated with ill defined lucencies in the synchondroses.

- [The Private Radiology Clinic] X-rays of 31 October 2003 show healed fractures of the left superior ischiopubic ramus with smooth periosteal new bone remodelled to a cortical contour and a smoothed appearance to the ischiopubic synchondroses bilaterally with ill defined bands of sclerosis at each synchondrosis.

In Summary: The appearances are those of fractures of the left pubis and left ischiopubic ramus, visible on films of 27 May and becoming more obvious with the healing process causing surrounding sclerosis and periosteal reaction. Undisplaced fractures of both inferior ischiopubic rami become evident on later films and are well healed by the films of 31 October 2003.

ANSWERS TO QUESTIONS:

1. *Does the X-ray of Ms [A's] pelvis, dated 27 May 2003, indicate fractures of the left superior and/or inferior pubic rami?*

Fractures of the left superior ischiopubic ramus are shown on the film of 27 May 2003.

2. *Please comment on whether the radiology report written by [Dr B], dated 28 May 2003, was adequate and appropriate.*

The report was incorrect. There is a visible fracture.

However, of a small number of radiologists who were shown this film and informed of the prior history (ie fall with right sided buttock pain), only one was able to detect this fracture on the initial read.

The words 'appropriate' and 'adequate' imply to me some value judgment. As his peers find this fracture extremely difficult to detect I would consider that the report was adequate. I consider the report to be inappropriate as it was incorrect, however, as this occult fracture was exceptionally difficult to perceive on the available X-rays and indeed was not perceived by the great majority of radiologists who have subsequently read this X-ray then [Dr B] has met the standards of his peers and so I believe the report was adequate.

[Dr B's] comment 'a lateral of the right hip was not performed and if there is significant clinical concern this may be of value' is appropriate although perhaps the report could not be delivered speedily enough to influence the course of treatment in the Emergency Dept.

3. *Please comment on the likelihood that [Ms A's] fracture was sustained on 26 May 2003, given that she complained of right sided pelvic pain on that date.*

The sequence of films, and the fracture healing shown on them is consistent with fractures being the result of trauma sustained on 26 May 2003.

4. *Do the investigations into [Ms A's] condition appear to have been unduly influenced by her complaints of right sided pelvic pain?*

Yes, the assessment in emergency did initially focus attention on the right hip/right side of pelvis.

5. *Are there any other matters that you consider should be brought to the Commissioner's attention?*

Yes, I would like to make the following suggestions about appropriate Emergency Department protocols for imaging of patients with suspected pelvic fractures.

(a) My opinion is that, in all cases of suspected fracture at least two radiographic views are required and that Emergency Dept and X-ray Department protocols should require more than one view.

(b) Modern assessment standards do require ready access to MRI for problematic hip trauma. At another Public Hospital patients with history and clinical findings suspicious for hip fracture but no fracture shown on plain X-rays are sent for MRI of the pelvis and hip. MRI is a very sensitive means of detecting otherwise occult fractures and outlining the extent of soft tissue injury (whether or not this is associated with a fracture). At this other Public Hospital patients with a strong clinical suspicion of hip or pelvic fracture and negative X-rays are kept on bed rest until an MRI is obtained (usually within 24 hours). Treatment is then based on MRI findings. This protocol minimizes time to definitive diagnosis and identifies a significant number of occult fractures without putting patients at increased risk of displacement of an occult fracture. Prior to MRI availability Nuclear Medicine Bone Scans were obtained and used as a 'gold standard' for evidence of fracture, however, such scans are often not positive until 48 hours after a fracture. Timely MRI can therefore save up to two days wait in bed for this group of problematic patients, and the sensitivity of MRI is such that there is very little risk of missing fractures when using this protocol."

Response to Provisional Opinion

Dr E, Clinical Leader of Radiology Services, responded to my provisional opinion as follows:

> "With respect to the reviewer's comment 5(a)
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> The recommendation for two views for suspected fractures is already standard practice at the Public Hospital for most areas of the body. However, in trauma cases, the routine trauma series of AP Chest, AP Pelvis and Lateral C-spine views is standard at the Public Hospital, and is the standard, worldwide accepted screening trauma X-ray protocol. Additional pelvic views can be obtained (including oblique views, inlet-outlet views, Judet views) however the need for this depends on clinical context and not necessarily the radiologist's decision. I feel it is not reasonable to expose the population to additional pelvic X-rays as a routine, which seems to be the suggestion of the reviewer.
>
> With respect to the reviewer's comment 5(b)
>
> There is ready access to MRI for problematic hip or pelvic trauma at the Public Hospital, since 1999, when the MRI was installed. Again, the need for this depends on clinical context. The MRI protocols for possible hip/pelvic fracture already exist at the Public Hospital and this is generally available within 24 hours and, in fact, is often performed the day the request is made."

Code of Health and Disability Services Consumers' Rights

The following Rights in the Code of Health and Disability Services Consumers' Rights are 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 B

Dr B's radiology report
Right 4(1) of the Code of Health and Disability Services Consumers' Rights (the Code) states that patients have the right to have services provided with reasonable care and skill. This includes the right of patients to have their X-rays read carefully.

Dr Gendall, my expert advisor, identified the fractures of the left superior ischiopubic ramus as shown on the film of 27 May 2003. Dr Gendall commented that Dr B's radiology report was incorrect as it did not identify the fractures. However, Dr Gendall observed that when Ms A's film was viewed by a small number of radiologists, who were informed of her prior history (ie, a fall with right-sided buttock pain), only one was able to detect the fractures on the initial read.

It is clear that Dr B's radiology report did not accurately identify Ms A's fractures. However, my advisor commented that "this occult fracture was exceptionally difficult to perceive on the available X-rays and indeed was not perceived by the great majority of radiologists".

Although Dr B's radiology report was incorrect, it is not always possible to identify every fracture on an X-ray. In the circumstances I consider that Dr B provided services of an appropriate standard when he reported Ms A's X-ray, and that he did not breach Right 4(1) of the Code.

Opinion: No breach – Public Hospital

The primary focus of Ms A's complaint is that her pelvic fractures were not identified on 26 May 2003. Consequently, my investigation sought to determine whether those fractures should have been identified in Dr B's radiology report dated 28 May 2003. As it was reasonable for Dr B not to have identified the fractures, no issue of direct or vicarious liability arises in relation to the Public Hospital.

Follow-up actions

Medical Council of New Zealand
A copy of my final report will be sent to the Medical Council of New Zealand and the New Zealand College of Radiologists.

Education
A copy of my final report, with identifying details removed, will be sent to the Public Hospital Emergency Department and placed on the Health and Disability Commissioner website, ww.hdc.org.nz, for educational purposes.

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