Orthopaedic Surgeon, Dr B

Private Hospital

District Health Board

A Report by the

Health and Disability Commissioner

(Case 08HDC02404)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Parties involved

Mr A	Consumer
Dr B	Provider/Orthopaedic surgeon
Dr C	Orthopaedic consultant
Dr D	Orthopaedic consultant
Dr E	Orthopaedic surgeon

Complaint

On 18 February 2008 the Health and Disability Commissioner (HDC) received a complaint from Mr A about the services provided by Dr B. The following issues were identified for investigation:

> *Whether Dr B provided adequate information to Mr A about hip replacement surgery and postoperative care in September 2007.*
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> *Whether Dr B provided Mr A with appropriate treatment and care in September 2007.*
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> *Whether a Private Hospital provided Mr A with appropriate treatment and care between 18 and 25 September 2007.*
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> *Whether the Private Hospital provided adequate information to Mr A about the hip replacement surgery and postoperative care between 18 and 25 September 2007.*
>
> *Whether a District Health Board provided Mr A with appropriate treatment and care in September and October 2007.*
>
> *Whether the District Health Board provided adequate information to Mr A in September and October 2007.*

An investigation was commenced on 10 July 2008.

Information reviewed

Information was received from:

- Mr A
- Dr B
- Operations Manager, Surgery, the DHB
- Chief Executive, the Private Hospital

Mr A's clinical records were obtained from Dr B, the Private Hospital and the District Health Board (the DHB). The Private Hospital also provided a copy of its booklet 'Total Hip Joint Replacement' and the document 'Regulations covering practitioners at the Private Hospital'. All information gathered was provided to the independent experts and reviewed during the course of this investigation.

Independent expert advice was obtained from consultant orthopaedic surgeon Dr Garnet Tregonning and is attached at Appendix A.

Information gathered during investigation

Preoperative assessments
On 4 April 2007, Mr A, aged 62 years, consulted orthopaedic surgeon Dr B at his rooms to discuss hip joint replacement surgery. Mr A, who was a fit, athletic man, had been suffering hip pain for some time.

On examination, Mr A had difficulty walking, and flexion deformity of both hips, the right being the more severe. X-rays taken of Mr A's hips that day confirmed that he had severe osteoarthritis of both hips.

Mr A recalls that he asked Dr B about the risks associated with the surgery. He clearly remembers that Dr B told him that there are things that can go wrong, such as cutting through a nerve, but this is rare, because he is "pretty careful". Mr A asked how he would be affected if a nerve were cut. Dr B replied that he would be unable to move his foot properly — that he would drag his foot. Mr A asked how long that would last and was told, "forever". Mr A said that gave him a bit of a shock, but he didn't want to think too much about it, because he knew he needed to get his hips done. He remembers that Dr B told him that he would "cut the top off the bone", but did not give him a long lecture about any problems. He assumed that this was because he didn't want to scare him. Mr A does not recall any discussion about other possible complications, including the risk of dislocation, at any of his preoperative consultations with Dr B.

Dr B stated that when he saw Mr A in April 2007 for increasing pain in his right hip, he discussed hip surgery and postoperative management. Dr B advised that it is his usual practice to provide general information about the surgery to his patients. He normally tells his patients that they will be in hospital for three to seven days and will only go home when they can manage stairs on their crutches, need only oral pain relief and are confident and comfortable to be at home. Dr B has a website that provides more detail about the orthopaedic surgery he performs, and he advises patients to access the website if they require further information.

Dr B did not document this discussion in his notes or in his follow-up letter to Mr A's medical practitioner.

Mr A stated that Dr B never mentioned his website about hip replacements.

Mr A did not have health insurance. Dr B advised Mr A that it was unlikely that ACC would fund this hip replacement surgery (Mr A had had an accident a few years ago) and referred him to an orthopaedic surgeon, Dr E.

Dr B advised that he "templated"[1] Mr A for total hip joint replacement (THJR) surgery at this assessment. Mr A does not remember being templated by Dr B.

On 26 July, Mr A returned to see Dr B to discuss his options for surgery, because he was unable to see Dr E until 29 August 2007. Dr B advised him not to make a decision until he saw Dr E, but if the wait for surgery was too long, to return and he would arrange for him to have the surgery in the private sector.

Following his consultation with orthopaedic surgeon Dr E, Mr A contacted Dr B again to discuss his options and finally decided to have the surgery privately and to have both hips operated on at the same time. Dr B arranged for Mr A to have the surgery at the Private Hospital on 19 September 2007. Mr A stated that he was unsure about having both hips operated on at the same time, but Dr B said that it would "get it over and done with", that he would be "fine" as he was fit and healthy, and it would mean that he needed only one anaesthetic.

Dr B advised that he templated Mr A again preoperatively. He explained that the Private Hospital staff order the type of prosthesis he wants to use, and the manufacturer sends a whole kit containing the complete range of sizes, as the final size implanted depends on the final broach[2] used during the procedure.

[1] This involves a plastic model of the prosthesis being laid over the patient's X-ray to judge the size of the prosthesis needed to restore the original anatomical arrangement. Each manufacturer of prosthetics supplies the plastic models for their products.

[2] Instrument to prepare the bone for the implant.

Arrangements for surgery at the Private Hospital
The Private Hospital advised HDC that the surgeon is responsible for communicating to the operating theatre any surgical prosthesis, loan sets or any specialised equipment to be used during the procedure. Bookings are made a week prior to the surgery, or earlier if the surgeon's list allows, and the Theatre Team Leader or senior nurse managing that operating list is responsible for ordering the equipment the surgeon requested.

Dr B has been credentialled[3] at the Private Hospital since 1996 and has had his credentials reviewed and renewed annually since then on the recommendations of the Private Hospital's Credentials Committee.

Clinical audit takes place at multiple levels at the Private Hospital. The main criterion for clinical audit, 'Reportable Clinical Events', includes unplanned returns to theatre, transfer to Intensive Care, readmission to the Private Hospital, and death. Reportable events are reviewed by the chair of the Medical Advisory Committee (MAC) and the Director of Nursing every two months and action is initiated with consultants as required. These actions are discussed further with the MAC at its regular meetings. Every six months the reportable events are collated by the Quality Co-ordinator and reported to MAC. Trends are highlighted and any issues addressed as required.

The Private Hospital — 18–25 September 2007
On 18 September 2007, Mr A was admitted to the Private Hospital for bilateral total hip joint replacement surgery the following day.

The Private Hospital provides patients admitted for hip replacement surgery with a booklet, 'Total Hip Joint Replacement'. Pages five and six of the booklet detail the complications that may occur following hip joint replacement surgery under the headings infection, blood clots, dislocation and loosening.

Mr A signed a two-page consent form for the surgery. The first page had a section for the request and consent for anaesthesia, and a section related to possible accompanying documentation, such as resuscitation orders, enduring power of attorney and living will. The second page of the form detailed the surgery to be preformed and had a section for consent for blood products.

Surgery
Dr B advised HDC that Mr A's surgery, which commenced at 8.10am and finished at 12.25pm on 19 September 2007, was uncomplicated.

The operation note indicated that the "acetabulum[4] was debrided of soft tissues and reamed 56mms and a 56mm RM cup inserted. The femur was broached to a No. 6 on

[3] This involves the clinician's competence to practise being examined and approved.

[4] Hip socket.

the right and a No. 7 on the left and the appropriate 135° stem inserted. A 28x3.5mm Sulox head was applied."

Dr B stated that there was considerable bleeding from the right hip because of the diseased bone, but the hip was stable when relocated and apart from the bleeding there were no particular problems with the surgery on either hip. A drain was inserted, the skin closed and a Tegaderm dressing applied. Dr B ordered intravenous antibiotics for Mr A for 24 hours.

Postoperative care
Mr A's right hip dislocated in Theatre Recovery when he was turned to check the hip for bleeding. Mr A does not recall being conscious in Recovery or being aware that his right hip dislocated at that time. He was told about the dislocation by nursing staff later that day.

The clinical notes indicate that Mr A's postoperative care on the ward in the first 24 hours was routine. He had an epidural for pain management and, because there was some postoperative bleeding, was given replacement intravenous fluid. The appropriate precautions were taken when moving Mr A, ensuring that he was turned with pillows between his legs to prevent internal rotation.

Dr B saw Mr A at 7am on 20 September, noting that he was comfortable and moving his legs well. Dr B documented his instruction to the nursing staff to remove Mr A's surgical drain and to mobilise him when the epidural wore off.

Mr A recalls that on the morning of 20 September, his right hip dislocated when one of the ward nurses turned him to check the bleeding from his right hip wound. At 10.30am Mr A was taken for a postoperative X-ray of both hips. The X-ray revealed that Mr A's right hip had dislocated and the left hip was subluxed.[5] Dr B was notified and advised that he would return to see Mr A that afternoon. Dr B administered a sedative to Mr A and initially attempted to relocate the hip in the ward. Mr A's wife was present and became distressed. At 3.30pm, Mr A was taken to theatre, where Dr B relocated his hips under epidural anaesthetic. Mr A was returned to the ward in an abduction splint.

The next day, Mr A was transfused with two units of blood. Dr B reviewed him twice that day and saw him again on the following two days. Mr A was mobilised according to Dr B's mobilisation protocol. He had no further dislocations, but on 24 September he felt a "click" in his left hip. Dr B examined Mr A and his hip was X-rayed again, but no dislocation was seen. Mr A was discharged home on 25 September.

[5] Partially dislocated.

26 September — first dislocation at home
Mr A recalls that the first night he was at home following his discharge from the Private Hospital, he stretched in bed at 2am and his left hip dislocated. He telephoned the Private Hospital for Dr B's telephone number. Dr B advised Mr A to telephone for an ambulance and go to the Public Hospital. Mr A asked Dr B if he would meet him at hospital. He recalls that Dr B said, "No. They will look after you."

At 6.30am on 26 September, Mr A was taken by ambulance to the Public Hospital Emergency Department (ED) where an X-ray confirmed that his left hip prosthesis was dislocated. At 9.15am, an ED registrar relocated Mr A's left hip prosthesis under sedation of propofol and fentanyl. A post-procedure X-ray revealed that the relocation was not successful and the orthopaedic registrar was notified. A further attempt was made under sedation, and was successful. Mr A was fitted with a Scott splint to prevent flexion of his knee and hip. The ED registrar discussed Mr A with the orthopaedic team and he was admitted to the Short Stay Unit (SSU) overnight.

Attempts were made to contact Dr B but he was not available. Dr B's nurse was asked to let him know about Mr A's presentation at the Public Hospital. The contact details of the relevant Public Hospital medical staff were left with the nurse for Dr B. Dr B advised that, "as far as he can recall", no one from the Public Hospital ED contacted him about Mr A's dislocation of his left hip.

On 27 September, Mr A was seen by the physiotherapist, who supervised his mobility with crutches and assessed his safety transferring from bed to chair, and negotiating stairs. Mr A was discharged home at 6.36pm.

29 September — second dislocation at home
At 2.49am on 29 September, Mr A was brought into the Public Hospital ED by ambulance with a further dislocation. At 5.19am, an ED registrar relocated Mr A's left hip prosthesis. Mr A was fitted with a Scott brace and then admitted to the SSU for review by the orthopaedic team. Mr A was seen by the orthopaedic team at about 10am. He was fitted with an abduction brace and informed that an orthopaedic outpatient appointment would be made for him and sent by post, and he was discharged at 12.43pm.

Dr B was contacted by the orthopaedic registrar. Dr B said he discussed treatment options with the registrar and requested that consideration be given to revising Mr A's left hip in the Public Hospital to put in a "longer head-neck to the femoral component", as Mr A was self-funding.

30 September — third dislocation at home
On 30 September, Mr A was again taken to the Public Hospital ED by ambulance, presenting at 10.39am with a further dislocation of his left hip. The ED registrar noted that Mr A had felt his hip "pop out" at 3am while he was in bed, despite wearing an immobilising brace. An X-ray confirmed that the hip was dislocated. The ED registrar relocated Mr A's hip and referred him to the orthopaedic team.

At 4.48pm, Mr A was told that there were no orthopaedic beds available. He was advised that he was not scheduled for theatre that day, but would probably be on the theatre list for the following day, 1 October. At 7.03pm Mr A was admitted to a ward under the orthopaedic team.

On the morning of 1 October, Mr A was seen by orthopaedic consultant Dr D. Mr A's hip had remained stable, so he was discharged with crutches and a splint to be followed up at the orthopaedic clinic on 5 October 2007.

Neither Mr A nor Dr B recalls conversing after Mr A's third admission to the Public Hospital. However, Dr B recalls that he telephoned the orthopaedic registrar and then the on-call orthopaedic consultant at this time to talk about further treatment for Mr A. He recalls that he repeated his earlier request that Mr A have a revision at the Public Hospital because he was self-funding and, although this could be done through ACC as a treatment injury, it would take time for private sector treatment to be processed and approved. Dr B recalls that a second orthopaedic consultant, Dr C, contacted him to discuss Mr A's case.

1 October — fourth dislocation at home

At 7.30pm Mr A was sitting at the dining table when he felt his hip dislocate. The ambulance was called and transported him to the Public Hospital ED. X-rays confirmed that Mr A's left hip had dislocated. An ED house officer and an orthopaedic registrar attempted to relocate Mr A's hip under sedation, but found the relocation difficult. A second attempt at 2.16am on 2 October was successful. Mr A's hip was stabilised with skin traction with a 5kg weight and he was admitted under the orthopaedic team. The ED notes record that Mr A had had five hip dislocations since 19 September.

2–19 October 2007 — the Public Hospital

At 8am on 2 October, Mr A was reviewed on the ward by the orthopaedic registrar. He planned to obtain Mr A's Private Hospital records, continue the skin traction and keep Mr A on nil per mouth until he was assessed by Dr D. X-rays taken showed that the initial uncemented femoral prosthesis had subsided; it had sunk down into the shaft of the femur. Given the degree of subsidence and the instability, it was decided to proceed to revision. Dr D stated:

> "[Mr A's] hips were reduced under general anaesthetic by registrars at [the Public] Hospital and were found to have a very limited range of stability. The X-rays demonstrate that the CLS prosthesis had subsided in both femora. It was my opinion that this was the cause for the recurrent instability, and that non-operative management would be very unlikely to be successful. It was therefore decided after obtaining a second opinion from [an] orthopaedic surgeon, that revision of both components was required. It was felt that the acetabular components had been implanted in an excellent and stable position and were not required to be revised."

On 3 October, Dr D, the orthopaedic surgeon and the orthopaedic registrar performed bilateral revisions and total hip joint replacement on Mr A.

On 8 October, Mr A developed an infection in his right hip wound. He was seen by the orthopaedic registrar, who discussed the situation with Dr D. Mr A was taken to theatre the following day for a wash-out of his wound. Material from the wound was sent to the laboratory for culture.

On 10 October, Mr A was seen by the infectious diseases registrar who recommended that Mr A start on broad spectrum antibiotic cover for Enterococcus, Pseudomonas and Staphylococcus until the culture result was known. The results were expected in 48 hours. The registrar noted the antibiotics of choice, two days of intravenous vancomycin and imipenem via a PICC[6] line, and that he would review Mr A in two days' time.

At 11.05am on 11 October, an intern pharmacist instructed that Mr A's vancomycin blood level be taken immediately before his 9pm dose was given that day. The target levels were to be within the range of 10–20mg/L. If levels were outside this range the infectious diseases team was to be notified.

Mr A was reviewed later that day by the infectious diseases registrar, who recommended that Mr A start intravenous amoxycillin, gentamicin and imipenem because of new information received from the laboratory about the organisms cultured from the wound wash-out.

On 12 October, Mr A was visited by the registered nurse Care Co-ordinator to discuss home antibiotic therapy. The plan was for the antibiotics to continue, with district nurse supervision, after Mr A was discharged. However, Mr A had to learn how to self-administer before discharge as the district nurses were able to visit only twice daily. He was to have blood tests twice weekly to check his gentamicin levels.

Discharge and sequelae

Mr A was discharged on 19 October 2007 with forms for the twice-weekly blood tests. The district nurse called every day to administer gentamicin to Mr A. He was seen at the infectious diseases clinic on 31 October and had blood tests for gentamicin levels on 2, 6, 9 and 13 November, and weekly thereafter.

On 4 December, Mr A told the district nurse that he was being troubled with vertigo. The nurse contacted the infectious diseases team, who saw Mr A later that day. Mr A was followed up by the infectious diseases and orthopaedic teams until January 2008.

Mr A developed problems with his renal function, which was closely monitored by the infectious diseases team at the Outpatient Clinic. On 22 January 2008, when Mr A attended the Outpatient Clinic, he reported experiencing vertigo, especially when turning his head. It was worse in dim light and when walking on uneven ground. The

[6] Peripherally inserted central catheter.

infectious diseases registrar stopped Mr A's antibiotics, asked him to have his gentamicin blood levels checked again and referred him to an ear, nose and throat surgeon.

On 14 March 2008, Mr A was seen by Dr D, who noted that he was still being troubled by vertigo, "presumably as a result of Gentamicin therapy". Dr D noted that Mr A had submitted an ACC claim for this condition. Mr A continues to be affected by vertigo.

Code of Health and Disability Services Consumers' Rights

The following Rights in the Code of Health and Disability Services Consumers' Rights (the Code) 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.

RIGHT 6

Right to be Fully Informed

(1) Every consumer has the right to the information that a reasonable consumer, in that consumer's circumstances, would expect to receive, including —

(a) An explanation of his or her condition; and

(b) An explanation of the options available, including an assessment of the expected risks, side effects, benefits, and costs of each option; …

Opinion: Breach — Dr B

Information disclosure

Mr A was assessed by orthopaedic surgeon Dr B for hip replacement surgery on 4 April and 26 July 2007.

Dr B reviewed Mr A's X-rays and confirmed that he had severe osteoarthritis of both hips. Mr A decided to have the hip replacement surgery performed privately, at the Private Hospital. Dr B described the surgery and postoperative management: that Mr

A would be in hospital for three to seven days and would go home on crutches after he could demonstrate that he could manage stairs. Mr A specifically asked Dr B what risks were associated with the surgery. Mr A recalls that Dr B talked about the rare risk of damaging a nerve during the surgery, but did not go into great detail. He does not recall any discussion about other possible complications, including the risk of dislocation.

Dr B stated that he provided Mr A with general information about the surgery and advised him to access his website if he required more detailed information, but did not record this in his clinical notes or in his letter to Mr A's GP. Mr A does not recall being told about the website.

My independent orthopaedic consultant, Dr Garnet Tregonning, advised that dislocation following total hip joint replacement (THJR) is one of the more common complications following joint replacement and occurs in between 1% and 4% of cases in the early postoperative period. Although the Private Hospital provides a booklet that details possible THJR complications on admission, this does not fulfil Dr B's duty to provide relevant and timely information about expected risks. It would have been prudent for Dr B to provide this booklet to Mr A during the assessment process.

I am not satisfied that Dr B provided Mr A with sufficient information about the expected risks, including possible dislocation, and conclude that he breached Right 6(1)(b) of the Code.

Standard of orthopaedic surgery and postoperative care
Dr B advised that he templated Mr A again prior to the surgery and ordered the type of implant he intended to use. Dr Tregonning noted the type of implant Dr B used and obtained specifications of this implant from the distributors. He templated the implant against Mr A's preoperative X-ray CD and, although he was unable to accurately template in these circumstances, he concluded that Dr B used an incorrect implant.

Dr B's operation note gave no indication of any mishap during the THJR surgery on 19 September 2007. He described the surgery as "uncomplicated" and noted that the hips were stable when relocated. However, in the recovery room Mr A felt a "clunk" in his right hip when he was turned so that the wound dressing could be reinforced.

Dr B saw Mr A early on the morning of 20 September for a postoperative check and gave the nursing staff directions for Mr A's postoperative management. However, Mr A believed that his left hip had dislocated in Recovery and advised the nurses of this. Dr Tregonning noted that no X-rays were taken of Mr A's hips at the end of the surgery. He said that some surgeons will take X-rays while the patient is still under anaesthetic, while others are happy to wait until the next day. When Mr A's hips were X-rayed at 10am on 20 September, the right hip was found to be dislocated and the left subluxed. Dr B was advised and returned Mr A to theatre at 3.30pm to reduce both hips under epidural anaesthesia. Dr B saw Mr A twice the following day and

once a day for the next two days. The only abnormality seen was some swelling to the right hip wound.

On 24 September, Mr A reported that he felt a click in his left hip. A new X-ray was taken and checked by Dr B later that day. However, there was no evidence of a dislocation at this time. Dr Tregonning noted that Dr B was obviously concerned about Mr A, because he saw him three times that day.

Dr Tregonning advised that almost all orthopaedic surgeons experience dislocation as a complication at least once in their careers. The causes are multifactorial and determined by either patient or surgeon factors. Patient factors include confusion and dementia, neurological disorders, falls and trauma. These factors were not present in this case. The most important surgeon factor is malposition of components of the hip replacement. Other factors are failure to restore soft tissue tension by either leaving the limb short or failing to correct femoral offset, and impingement from osteophytes[7] or cement.

Dr Tregonning opined that the cause of Mr A's early dislocations was Dr B's failure to restore the anatomy when he did not offset (correctly angle the prosthetic shaft) the top end of Mr A's femur. Dr Tregonning considered that there were two likely reasons for this occurring: either the offset and femoral lengths were restored at surgery but the implants subsided because of undersizing, or the undersized implants were not identified because of inadequate assessment and testing for stability immediately after implanting. The second scenario is the most likely.

Dr Tregonning advised that the standard of Dr B's THJR surgery was suboptimal in three areas:

- the preoperative templating.
- the assessment of the stability of the hips at the time of trialling the implants.
- the assessment of the postoperative X-rays, which clearly showed the undersizing of the implants.

Dr Tregonning advised that Dr B's performance would be viewed with moderate disapproval. I conclude that Dr B breached Right 4(1) of the Code.

I note that Dr B has apologised to Mr A for the poor outcome of his surgery.

Co-ordination of care — private/public

Mr A was discharged home on 25 September. At 7.18am on 26 September, Mr A was admitted to the ED with a dislocation of his left hip. Attempts were made to contact Dr B, but he was unavailable and a message was left with his nurse about Mr A's condition.

[7] Small boney growths.

It appears that it was not until 29 September when Mr A was admitted to the Public Hospital with a further dislocation of his left hip that Dr B was advised that there was a problem with Mr A's postoperative recovery. Dr B was contacted by the orthopaedic registrar. They discussed treatment options for Mr A. On the morning of 1 October, when Mr A's hip dislocated for the fifth time and Dr B was again contacted by the orthopaedic registrar, Dr B recommended that Mr A submit an ACC treatment injury claim and have hip revision surgery at the Public Hospital. Dr B also discussed Mr A with two Public Hospital consultant orthopaedic surgeons.

Dr Tregonning commented that this situation is an example of the difficulties encountered when an acute complication such as dislocation occurs when an orthopaedic surgeon works only in the private system and does not have an appointment in the public hospital. It is important that there is good communication between the surgeon and the hospital, which occurred in this case. Dr Tregonning advised that Dr B's follow-up care of Mr A was appropriate. I conclude that in relation to this aspect of Mr A's care, Dr B did not breach the Code.

Opinion: No Breach — The Private Hospital

I am satisfied that the Private Hospital provided appropriate services and information to Mr A in the circumstances. I have noted that Dr B was credentialled to perform orthopaedic surgery at the Private Hospital, and the Private Hospital has a system to identify and take appropriate action when any adverse events occur. The Private Hospital also provides patients being admitted for hip replacement surgery with a booklet detailing the procedure, possible complications and postoperative management.

Dr Tregonning advised that the Private Hospital provided an "excellent" standard of treatment and care to Mr A. He commented that the clinical documentation was "very satisfactory". However, Dr Tregonning suggested that the consent form be improved by including an acknowledgement that specific complications had been discussed preoperatively with the patient. I note that the Private Hospital has agreed to review its consent form in light of Dr Tregonning's comments.

In my opinion, in relation to the information and care provided to Mr A in September 2007, the Private Hospital did not breach the Code.

Opinion: No Breach — The District Health Board

Mr A was admitted to the Public Hospital on four occasions with hip dislocations after his discharge from the Private Hospital on 25 September 2007, following bilateral THJR.

Dr Tregonning advised that on each occasion Mr A was adequately examined, assessed and treated and appropriately referred to the orthopaedic team. Dr B was consulted about Mr A's admissions. When Mr A was admitted for the fourth time on 1 October 2007, after consultation with Dr B, it was agreed that Mr A would have revision surgery performed at the Public Hospital.

As previously discussed, Dr Tregonning commented on the difficulty in the New Zealand public health system where a few orthopaedic surgeons, such as Dr B, work only in the private system, and the problems that can occur if an acute situation develops after the patient has been discharged from the private hospital. He noted the importance of good communication between the hospital and the private surgeon in these situations, which occurred in Mr A's case.

Dr Tregonning considered that it was unwise to let Mr A go home again on 1 October, with an arrangement for him to be followed up by an experienced surgeon. However, while this was "unfortunate and very inconvenient" for Mr A, he believes that it had no major bearing on the long-term result.

The revision surgery performed on Mr A at the Public Hospital on 3 October resulted in both hips becoming stable and not dislocating further. Mr A's gentamicin blood levels were monitored regularly by the infectious diseases team, but he developed problems with his renal function and balance as a result of this medication. Dr Tregonning noted that the infection in Mr A's right hip was "very unfortunate" and resulted in some long-term problems, but considered that "no blame can be ascribed to the [Public] Hospital surgeons or orthopaedic department".

I conclude that Mr A received appropriate treatment and care at the Public Hospital, and that the District Health Board did not breach the Code.

Follow-up actions

- A copy of this report will be sent to the Medical Council of New Zealand, with a recommendation that the Council review Dr B's competence, and to the Royal Australasian College of Surgeons, and the New Zealand Orthopaedic Association.

- A copy of this report, with details identifying the parties removed, will be sent to the New Zealand Private Surgical Hospitals Association and placed on the Health and Disability Commissioner website, www.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.

Appendix A — Expert orthopaedic advice

The following expert advice was obtained from consultant orthopaedic surgeon Dr Garnet Tregonning:

> "I confirm that I have read the supporting information as outlined in your request.
>
> - Three radiology imaging CDs, labelled, [Mr A], taken between 4 April and 4 October 2007.
> - Letter of complaint from [Mr A] to the Commissioner, dated 13 February 2008, marked with an 'A'. (Pages 1 to 3)
> - Notes taken during a telephone interview with [a registered nurse with experience in orthopaedics] on 25 June 2008, marked with a 'B'. (Page 4)
> - Response from [Dr B], accompanied with clinical records, received 10 April 2008, marked with a 'C'. (Pages 5 to 61)
> - Response from [Dr B], accompanied with clinical records, received 28 July 2008, marked with a 'D'. (Pages 62 to 64)
> - Response from [the Private Hospital], dated 12 August 2008, marked with an 'E'. (Pages 65 to 112)
> - Letter of response from orthopaedic surgeon [Dr D], with accompanying documents, received 20 February 2008, marked with an 'F'. (Pages 113 to 123)
> - Response from [the] DHB, including clinical records, marked with an 'F'. (Pages 124 to 442)
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> In addition I have read the response of [Dr B] in response to my questions dated 17 September 2008 and finally I confirm that I examined a CD with X-rays from [a radiology centre] containing the AP X-ray of the hips.
>
> **Overview of Events**
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> [Mr A] first consulted [Dr B] on 4 April 2007 after referral from his general practitioner. It is clear that he had severe osteoarthritis affecting both hips with some early collapse of the right femoral head. It is also clear that the degree of osteoarthritis was such that bilateral total hip joint replacement was indicated.
>
> [Mr A] was referred by [Dr B] to [Dr E] at [the] Public Hospital and was seen on 29 August 2007. The result of that consultation was that [Dr E] concurred

with total hip joint replacement and made arrangements to put him on the waiting list at [the] Public Hospital.

In the meantime [Mr A] investigated the possibility of having the surgery done privately and finally it was agreed that it be done at [the Private Hospital] on 19 September 2007. It was also agreed that both hips would be done sequentially at the same sitting.

The consent form for [the Private Hospital] was signed on 18 September 2007 but I note that there was no specification of the possible complications of total hip joint replacements. Indeed I note on this specific form that there is no provision of space for this documentation.

According to contact with [Mr A] by [HDC investigator] on 19 September 2008, it was agreed that some complications were discussed, but [Mr A] did not recall any specific mention of dislocation. He also states 'that he was reasonably sure that [Dr B] did not mention the presence of a website which contained those complications'.

I note in the letter of [Dr B] to the Commissioner dated 28 July 2008 that on 4 April 2007 'I went over his surgery and postoperative management'. [Dr B] also stated that he had not documented this in his notes nor in the letter to the general practitioner.

With respect to the operation itself, the operation note gave no indication of any mishap during the procedure. Indeed it was described as 'uncomplicated' in the dictation of the operation note. It also stated that 'the hip was stable when relocated'.

I feel the relevant issues with respect to these hip replacements and the subsequent complication of dislocation includes the following:

1. The procedures were performed through a posterior approach.

2. 28mm femoral heads were used.

3. With respect to the soft tissue repair 'the capsule and short external rotators were repaired with 2 Vicryl'.

4. A Spotorno CLS Zimmer prosthesis was used for the femoral component. On the right side a No. 6 size was used and on the left side a No. 7.

5. No X-ray was performed on the operating table at the conclusion of the procedure but indeed was done the next morning.

6. There was noted to be considerable bleeding from the right hip wound postoperatively as noted in the subsequent letter of [Dr B] of 23 March 2008.

In the recovery room it is noted that [Mr A] felt a clunk in his right hip when he was turned in recovery to apply extra padding to the ooze through the wound. This was not recorded in [Dr B's] letter of 12 August 2008. It was also noted that the epidural continued to be used and was working well.

On 20 September, the day following surgery, the check X-ray which had previously been arranged at surgery showed that the right hip was fully dislocated and the left was subluxed. No mention is made of any suspicion of this when [Dr B] had examined the patient earlier that morning.

At 1530 on 20 September [Dr B] reduced both hips under epidural. I note that there was no comment made about the stability of these hips and it is not clear whether this was checked at that time. After this the epidural was stopped. [Dr B] wrote in the notes that 'a check X-ray of the right hip was okay' at 1700 hours. I note that there was no comment about the lack of offset in the replacements which was readily apparent on those X-rays. The patient remained in an abduction splint and then was mobilised.

On 21 September the patient was checked by [Dr B] on two occasions and was transfused two units of blood. He was also checked the following two days and the only abnormality noted was that there was some swelling of the right wound but there was no evidence of infection.

On 24 September [Dr B] documented that the patient had 'felt a click in the left hip'. A new X-ray was taken and checked by [Dr B] later that day and it was noted that it was satisfactory with no dislocation. I note that the patient was seen three times that day which would seem to indicate some concern about the situation. Finally the patient was seen on 25 September by [Dr B] when arrangements for discharge were made. At that time the nurses noted that both wounds were clean.

[The Public] Hospital

1. [Mr A] was first admitted to [the Public] Hospital at 0718 on 26 September by ambulance. He had apparently woken with his left hip dislocated.

The SHO in the Emergency Department attempted reduction under sedation but this was unsuccessful. Subsequently the Orthopaedic Registrar on call relocated the hip and this was confirmed on X-ray. The registrar noted 'easy reduction appears stable'.

Of particular note is that it is recorded that 'attempts were made to contact [Dr B] who was unavailable'. Details were given to [Dr B's] nurse and instructions were made to inform the Orthopaedic Registrar if the hip dislocated again.

[Mr A] was kept over night in the short stay unit and an abduction brace was provided after he was seen by Physiotherapy. He was also seen by the Orthopaedic Registrar before he was discharged from the Emergency Department presumably to be followed up by [Dr B].

2. He was re-admitted by ambulance at 0249 on 29 September. Apparently whilst lying in bed he stretched and his left hip dislocated. It was questioned whether the hip relocated on subsequent movement.

   When he was seen in the Emergency Department the hip was dislocated and the orthopaedic team was requested to review the patient. He was seen by the orthopaedic team of the day and confirmed that he was fitted with an abduction brace. He was then discharged home with instructions 'Doctor will arrange outpatient clinic appointment and send by post'.

3. The third admission was at 1039 on 30 September. Again the patient had the hip dislocate at 0300 in bed as a result of minimal movement, despite wearing his immobiliser. He was subsequently seen by the orthopaedic doctors who admitted the patient to [the] ward because there were no orthopaedic beds available in the hospital at that time. He was kept overnight and was seen by the Orthopaedic Consultant the next day and was discharged to be followed up at clinic on 5 October. [Mr A] was subsequently re-admitted on the same day by ambulance at 2225. It was noted in the Emergency Department notes that there had been five dislocations since 19 September. The patient was then admitted to hospital under traction and was seen by an Orthopaedic Consultant, [Dr C], who referred the patient on to [Dr D], who subsequently took over the patient's care.

   [Dr D] then decided, after discussion with other Orthopaedic Consultants, that the patient needed bilateral revision surgery which was performed on the 3 October 2007. The surgery was performed by [Dr D], assisted by [an orthopaedic surgeon] and [the orthopaedic registrar]. Under anaesthesia, prior to surgery, both hips were found to be quite unstable particularly anteriorly. It was thought that X-ray had demonstrated that the initial uncemented femoral prosthesis had subsided.

   Both hips were revised but only the femoral components were exchanged. It was felt that the acetabular components were entirely satisfactory. According to the operation notes no complications were encountered and the femoral components were replaced with a size 5 Summit high offset stem on the left side and a size 13 stem on the right side. The hips were checked and found to be very stable.

Postoperatively the patient was on intravenous antibiotics for 72 hours.

It was also confirmed that the new prostheses involved the use of 28mm diameter heads. This was because the acetabular components which were felt to be entirely satisfactory required the use of 28mm head prostheses.

Following the surgery on 3 October, he did well for a few days but unfortunately developed a deep wound infection in the right hip prosthesis detected approximately five days following the surgery when there was erythema and discharge from the wound. [Mr A] was taken back to theatre for a wash out of the hip on 9 October. From the deep tissues Enterococcus Faecalis and Pseudomonas Aeruginosa were isolated. He was commenced on Imipenem, Gentamicin and Amoxycillin as an inpatient and a PICC line was inserted. Prior to discharge from hospital his antibiotics were changed to Amoxycillin, Gentamicin and Ciprofloxacin.

Follow up notes from the Orthopaedic and Infectious Diseases clinic which he attended indicate that he developed some abnormality of renal function, presumably secondary to Gentamicin toxicity. In addition he reported that he had been troubled by vertigo, also probably due to the Gentamicin. The last clinic notes available to me from the orthopaedic clinic on 16 November 2007 and from the Infectious Diseases clinic of 4 December 2007 indicate that the patient was doing very well with no discomfort in his hips and it appeared that the infection had come under control. It was also noted that his renal function had returned to normal although he had some ongoing problems with balance.

Dislocations following Total Hip Joint Replacements

This is one of the more common complications following joint replacement and has a variable frequency recorded in the literature. It is quoted as between 1 and 4% for early dislocations.

Almost all surgeons have experienced dislocation as a complication at least once in their careers.

The causes of dislocation are multifactorial and generally are considered under patient factors and surgeon factors.

The most important patient factors include confusion and dementia as well as neurological disorders and patients being prone to falls and trauma. I do not believe that any of these factors played a part in this case.

Surgeon Factors

The most important is mal-position of components of the hip replacement. In addition a very important factor is failure to restore soft tissue tension by either

leaving the limb short or failing to restore correct femoral offset. In addition impingement can occur from osteophytes or cement.

Cause of Dislocation in this Patient

In my view it was a failure to restore the anatomy, namely, the surgeon did not restore the offset of the patient's proximal femur.

I believe there are two possible scenarios here.

1. Offset and femoral lengths were restored at surgery but the implants may have subsided due to undersizing within 24 hours.

2. The implants used were undersized, particularly with respect to offset. In this situation it would have been expected that appropriate assessment or testing for stability immediately after implantation would have revealed the instability.

In my view the second scenario is the most likely.

In support of this I make the following comments:

The surgeon implanted a size 6 135° CLS Spotorno femoral component on the right and a size 7 135° component on the left.

I have obtained the specifications of this implant from the distributors. The size 6 135° implant has an offset ranging from 33.9mm to 38.8mm depending on neck length used. It has an average of 36.3 with a size 0 neck length.

The size 7 135° implant has a range of offsets from 35mm to 40.1mm and offset of 37.6mm with the use of a size 0 head.

Whilst I was not able to accurately template the preoperative X-rays from the CD provided, the fact that both femoral necks showed a tendency to varus disposition, coupled with some significant central wear has led me to conclude that the use of an implant with a relatively high offset, probably at least 44mm, was necessary. As mentioned above the offset used here was significantly less than that.

X-rays were not taken at the end of the operation but were taken the following morning at [the Private Hospital]. Some surgeons prefer to X-ray the patient while he or she is still under anaesthetic on the operating table so that if some unexpected abnormality (such as dislocation) is shown, it can be corrected at that time. I appreciate, however, that other surgeons are happy to wait until the following day and this is not uncommon practice in New Zealand.

The X-rays taken on the morning of 20 September 2007 unexpectedly showed that the right hip was dislocated, probably anteriorly, and the left hip was grossly subluxated. It is noted that at the time this X-ray was taken the patient still had an epidural block working with resultant decreased muscle tone.

After reduction of both hip replacements the day following surgery, the X-rays taken demonstrate that the femoral components are significantly under-sized and, most importantly, have not restored the appropriate offset. In addition I note that both acetabular components were centralised, compounding the problem of offset. Otherwise the appearances of the acetabular components look entirely satisfactory. The X-ray also indicated that both proximal femora appeared to be slightly short.

Whilst postoperative subsidence is theoretically possible (as suggested by the [Public] Hospital surgeons), I think it is unlikely in this particular instance given that the bone quality in this patient is excellent, as shown on X-ray, and the geometry of the CLS femoral stem, with its double taper, makes it very unlikely to subside. Also [Dr B] commented that the broach was very tight on the right side at least. In addition at a period so soon after surgery the epidural block was still working reducing the tone of the muscles around the hip and therefore making it less likely that subsidence would occur.

Subsequent multiple X-rays taken over the next two weeks showed no evidence of any further change in position or subsidence of the femoral implants.

It is important to note that if indeed subsidence did occur postoperatively, it would have been due to under-sizing of the Femoral Implants.

In summary I believe the cause of the multiple early dislocations was failure by the surgeon to restore offset of the hips. It would appear that at the time of preoperative templating he did not appreciate the amount of offset required in this case. I cannot explain why this was so.

In addition, even though he describes the steps and manoeuvres he used to assess the stability intra-operatively (as outlined in his letter to the Commissioner on 17 September 2008), and which are those used by most surgeons, he did not mention testing for length by longitudinal traction.

It seems to me that [Dr B] did not appreciate the instability of the implants secondary to the failure to restore offset which would have been present and obvious at the time of assessment intra-operatively. Again I am not able to explain why this was so.

Expert Advice Required

1. [Dr B]

I believe [Dr B's] care was entirely satisfactory with respect to assessment of [Mr A] at the first consultation and subsequently during [Mr A's] stay in [the Private Hospital].

As mentioned previously I do have concerns, however, in three areas.

a) Preoperative templating. [Dr B] states that he did template the X-rays preoperatively and concluded that a size 7 CLS femoral component was indicated. This has an offset of 35–40mm, dependent on the neck length used.

   I believe this was a misinterpretation given the medial wear of the acetabulum as seen on X-ray and the shape of the head and neck of the proximal femur.

   To my eye an offset of the range of 44–46 would be more likely to be indicated although as mentioned previously I was not able to accurately template the X-rays on the CD provided to me.

   I have no problem with [Dr B's] use of 28mm femoral heads as this is a commonly used size of implant by surgeons throughout the world.

b) Assessment of the stability at the time of trial implantation. It is clear that [Dr B] did not appreciate the degree of instability at the time corrective measures could have been taken. He concluded that the implants were stable. This is assuming subsidence did not occur a short time following implantation.

c) Assessment of the postoperative X-rays. [Dr B] stated that the post reduction X-rays were satisfactory on a number of occasions when it is quite clear that the femoral components were undersized with particular reference to their offset.

I note that [Dr B], in reply to my questions, states that he has had only one other dislocation using this implant since 2002. He does not state how many implants he has used however.

If this is true I find it difficult to explain the reason for both femoral implants being under size in this case.

2. Follow-up Care

Given the circumstances I believe [Dr B's] care was appropriate. He had been informed of the repeated dislocations by [the public] Hospital after [Mr A's] discharge from [the Private Hospital]. It appears that he did discuss the subsequent management of [Mr A] with the Orthopaedic Registrars and later with an Orthopaedic Consultant who arranged to take over the care of [Mr A]. I think this was an appropriate response at this stage.

3. [The Private] Hospital

In my view [the Private Hospital] provided a very satisfactory standard of treatment and care to [Mr A]. Documentation in the hospital records was very satisfactory and in my view the care provided was of an excellent standard. It is suggested that in line with other institutions, the Consent Form for Surgery at [the Private Hospital] be modified to include a section for the surgeon to document the specific complications discussed with the patient preoperatively.

4. [The Public] Hospital

It is well documented that [Mr A] was taken acutely by ambulance to the Emergency Department at [the Public] Hospital on four occasions after his discharge from [the Private Hospital] — namely on 26, 29 and 30 September and finally on 1 October. On each occasion he was adequately examined and assessed by the Emergency Department staff and I believe appropriately referred to the orthopaedic team of the day. On the first occasion that he was discharged home on 26 September it is documented that attempts were made to contact [Dr B] and finally a message was left with [Dr B's] nurse. [Dr B] did receive the information. There was no documentation in the [Public] Hospital notes of contacting [Dr B] after the subsequent assessments in the Emergency Department and the patient's discharge but, by [Dr B's] own admission, he was contacted by the Orthopaedic Registrar who discussed further management with him. In addition [Mr A] personally contacted [Dr B] on each occasion. I am therefore satisfied that suitable communication with [Dr B] occurred.

It is to be noted that the patient continued to remain under the care of [Dr B] after each discharge, not [the Public] Hospital, although it is documented that an appointment was made to see [Mr A] later as an outpatient.

This situation is an example of a difficulty in the New Zealand Public Health system where a few Orthopaedic Surgeons such as [Dr B], work only in the private system and have no appointment to the public hospital of the region. This creates problems for the private surgeon (and their patients) when an acute complication such as dislocation or infection occurs after the patient has been discharged from [the Private Hospital]. In such an instance almost always patients are taken urgently to the nearest Emergency Department where they

are assessed by the Emergency Department staff and then usually referred to the Orthopaedic Department at the Public Hospital who deal with the urgent problem. In most cases the patient returns to the care of the original surgeon, as occurred in this instance. It is obviously very important that there is good communication between the hospital and the private surgeon in this regard. I believe the evidence suggests that this did occur in this case. It could be suggested that the Orthopaedic Department was unwise in letting [Mr A] go home yet again on 1 October but it is apparent that arrangements were made for the patient to be seen soon after by a surgeon with experience in treating the situation. Whilst this was unfortunate and very inconvenient for the patient I do not believe it had a major bearing on the long term result.

At the time of the revision surgery performed on 3 October both hips were found to be very unstable when examined under anaesthesia prior to the operation. Following the revision of the femoral components both hips became quite stable and had not dislocated subsequently.

The complication of infection in the right hip that was revised is certainly very unfortunate and has resulted in some long term problems for [Mr A]. It is recognised that revision surgery within a few weeks of the primary surgery is certainly at a higher risk of developing a postoperative infection. This may have been influenced in [Mr A's] case by the fact that he had had considerable bleeding from the right hip wound soon after the initial surgery. However, no absolute direct link can be made. The development of the infection, I believe, was unfortunate and I do not believe any blame can be ascribed to the [Public Hospital] surgeons or Orthopaedic Department. I believe the treatment of the infection was entirely appropriate. The antibiotic management was overseen by the Department of Infectious Diseases. One of the antibiotics used was Gentamicin which is known to have complications of renal impairment and damage to the Vestibular Apparatus controlling balance. As far as I can see the Gentamicin levels in the blood were monitored regularly and it appears that there was no mismanagement in this area although unfortunately [Mr A] did develop problems with both his renal function and balance, which is an ongoing problem. If there is ongoing concern about this, the Commissioner could seek advice from an Infectious Disease Specialist.

Summary

[Mr A] underwent sequential bilateral total hip replacements performed by [Dr B] on 18 September 2007 for severe bilateral osteoarthritis of the hips.

Subsequently within 24 hours both hips were found to have dislocated and over the next two weeks there were five dislocations of the left hip and one of the right hip which suggested that both hip replacements were grossly unstable. This was subsequently demonstrated when examined under anaesthesia.

I believe the dislocations occurred as a result of the failure of [Dr B] to restore the normal anatomy of the hips at the time of the replacement. As I have mentioned previously the three areas of concern that I have are in preoperative templating, the assessment of the stability of the hips at the time of trialling the implants, and the assessment of the postoperative X-rays which clearly showed the under sizing of the implants.

Quite clearly [Dr B's] performance of this particular operation on both hips was suboptimal. I view the conduct of this surgery by [Dr B] with moderate disapproval.

It is not clear to me whether [Dr B] has had a number of postoperative dislocations using this implant. On direct questioning he states that he has only had one other dislocation over a period of six years. However, I do not know how many operations he has performed in this time.

If indeed this is an isolated instance, I am unable to explain why it occurred. Clearly it has had a most unfortunate result for [Mr A] who, as a result of this complication, has had to undergo further surgery complicated by deep infection, and damage to his Kidneys and Vestibular Apparatus caused by an antibiotic.

With respect to both [the Private Hospital] and [the Public] Hospital as noted above, I do not believe that there were any significant deficiencies in their care of [Mr A]."