Orthopaedic Surgeon, Dr C

Registered Nurse, Ms D

Registered Nurse, Ms E

A Private Hospital

A Report by the

Health and Disability Commissioner

(Case 10HDC00158)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

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Executive summary

Background

1. Dr A is a registered medical practitioner aged 69 years. Dr A's husband, Dr B, is also a medical practitioner.

2. On the morning of 27 May 2009, Dr A had surgery at a private hospital to decompress a two-level lumbar spinal stenosis. The surgery was performed by orthopaedic surgeon Dr C. On Dr A's return to the ward, the nursing staff took recordings of the movement and sensation of her feet and legs, and entered their observations on a Circulatory Observation chart. The amount of bleeding from the operation site was also monitored and recorded, and Dr A's pulse, respiration rate and blood pressure were recorded on a section of the Discectomy & Decompression Microdiscectomy, Day of Operation form. At 8pm, Dr C and anaesthetist Dr G reviewed Dr A, and the nursing observations were continued throughout the night.

3. At about 7.15am on 28 May, Dr C and Dr G reviewed Dr A, noting that, since midnight, she had had no movement in her ankles and feet and either nil or dull sensation in her feet. An MRI scan was organised and performed at 9am.

4. There is disagreement about when a theatre was available for Dr C to operate on Dr A on 28 May. Dr C stated that he first contacted the theatre at around 7.30am. Dr C initially stated that he was told that no theatre was available but later stated that no staff were on hand to discuss theatre availability. The private hospital submitted that Dr C did not make a call to the theatre staff to request a theatre until approximately 9.30am.

5. At about 9.30am the radiologist contacted Dr C at another private hospital (Hospital 2) regarding the MRI scan, which did not conclusively show a compression of the thecal sac.[1] Dr C then contacted the private hospital's theatre manager about available theatre times. The theatre manager, Ms H, recalled that Dr C telephoned at around 9.30am and was advised that a non-orthopaedic theatre could be made available for Dr A's surgery before midday, but Dr C declined this offer and booked an orthopaedic theatre for 2pm. Dr C denied being offered a theatre earlier than 2pm.

6. Dr C stated that operating between six hours and 48 hours after the onset of neurological impairment symptoms makes negligible difference to the outcome in such cases.

7. Dr C was delayed at Hospital 2, and Dr A's surgery to evacuate a haematoma took place at 3.28pm. Following the surgery, Dr A was transferred to a public hospital for ongoing treatment for impaired neurological function. Two weeks later Dr A was transferred to a spinal unit for rehabilitation.

8. Dr A was discharged from the spinal unit on 21 July 2009. She requires intermittent catheterisation and manual bowel evacuation. Dr A also suffers ongoing neuropathic

[1] Membrane of dura mater that surrounds the spinal cord and cauda equina.

pain in her feet and perineum, and cannot sit for any length of time without experiencing pain.

Decision summary

RN Ms D

9. Registered nurse Ms D was assigned the postoperative care of Dr A from 3.15pm to 11.15pm on 27 May 2009, and was responsible for monitoring Dr A's neurovascular status, and vital recordings of temperature, pulse, blood pressure, respiration rate and blood oxygen saturation levels, and for assessing her urinary output and blood loss.

10. RN Ms D undertook her tasks competently, and met professional standards. RN Ms D did not breach the Code of Health and Disability Services Consumers' Rights (the Code).

RN Ms E

11. Registered nurse Ms E was assigned the postoperative care of Dr A from 11.15pm on 27 May, to 7.15am on 28 May 2009. She was responsible for monitoring Dr A's status during the night.

12. At midnight, RN Ms E recorded that Dr A was exhibiting a neurovascular deficit. She continued to monitor Dr A two hourly, noting varying degrees of this deficit, but did not report her observations to the duty manager or Dr C.

13. By failing to report the changes in Dr A's neurovascular status, RN Ms E failed to act appropriately to ensure Dr A was provided services with reasonable care and skill, and breached Right 4(1) of the Code.[2]

14. In relation to her documentation, RN Ms E failed to meet accepted professional standards or comply with policies, and therefore breached Right 4(2) of the Code.[3] Ms E has apologised for her part in this unfortunate outcome.

Dr C

15. Dr C did not document his postoperative assessments of Dr A when he reviewed her with anaesthetist Dr G, at 8pm on 27 May 2009, or provide clear instructions to nursing staff about his expectations for monitoring Dr A's postoperative status.

16. When Dr C was notified of Dr A's neurological deficit on the morning of 28 May, he ordered a CT scan as he suspected that she had developed cauda equina syndrome[4] secondary to compressive haematoma, an unusual and serious postoperative emergency, but did not record his assessment or any further instruction to nursing staff. Dr C went to Hospital 2 to complete his morning surgery list. At 9.30am, Dr C

[2] Right 4(1) provides: "Every consumer has the right to have services provided with reasonable care and skill."
[3] Right 4(2) provides: "Every consumer has the right to have services provided that comply with legal, professional, ethical, and other relevant standards."
[4] A serious neurological condition in which there is acute loss of function of the lumbar plexus, neurological elements (nerve roots) of the spinal canal below the termination of the spinal cord.

was telephoned by the radiologist with the results of Dr A's MRI. Dr C then telephoned the private hospital theatre and arranged a theatre for Dr A at 2pm.

17. Dr C breached Right 4(1) by not providing services with reasonable care and skill, Right 4(2) by failing to comply with professional standards in relation to clinical documentation, and Right 4(5)[5] in relation to his failure to communicate effectively with staff to ensure the quality and continuity of the services provided to Dr A.

The private hospital

18. The private hospital generally had sufficient systems in place to ensure that Dr A was provided with services of an appropriate standard, and therefore did not breach the Code.

Investigation process

19. On 16 February 2010, the Commissioner received a complaint from Dr B about the services provided to his wife, Dr A. An investigation was commenced on 16 March 2010.

20. Information was obtained from:

Dr A	Consumer
Dr B	Complainant
Dr C	Provider/Orthopaedic surgeon
Ms D	Provider/Registered nurse
Ms E	Provider/Registered nurse
Ms F	Acting charge nurse
Dr G	Anaesthetist
Ms H	Associate clinical services manager — OR[6]
Ms I	OR charge nurse
The private hospital	

Also mentioned in this report:

Dr J	General practitioner
Ms K	Registered nurse
RN Ms L	Registered nurse
Ms M	Associate Clinical Services Manager
Dr N	Spinal surgeon, public hospital
Dr O	Medical Advisor
Hospital 2	Another private hospital
The public hospital	

[5] Right 4(5) provides: "Every consumer has the right to co-operation among providers to ensure quality and continuity of services."
[6] Operating Rooms or theatre suite.

21. Independent expert advice was obtained from orthopaedic surgeon Dr Bruce Hodgson and acute surgical nursing specialist Megan Polglase. Dr Hodgson's advice is attached as **Appendix A**. Ms Polglase's advice is attached as **Appendix B**.

22. The following issues were identified for investigation:

- *Whether Dr C provided Dr A with services of an appropriate standard on 27 and 28 May 2009 in relation to the spinal surgery he performed.*
- *Whether Dr C provided Dr A with services of an appropriate standard on 28 May 2009 in relation to managing her postoperative care.*
- *Whether registered nurse Ms D provided Dr A with services of an appropriate standard on 27 May 2009 in relation to managing her postoperative care.*
- *Whether registered nurse Ms E provided Dr A with services of an appropriate standard on 27 and 28 May 2009 in relation to managing her postoperative care.*
- *Whether the private hospital provided Dr A with services of an appropriate standard on 27 and 28 May 2009.*

Information gathered during investigation

Preoperative assessment

23. Dr A had suffered from back pain for about 10 years, which was limiting her mobility. Her general practitioner, Dr J, referred her to orthopaedic spinal surgeon Dr C, for assessment of her ongoing back pain.

24. Dr C saw Dr A on 13 March 2009 and, after examining her, discussed with her his working diagnosis of spinal stenosis and referred her for an MRI scan of her spine.

25. The MRI scan, carried out on 16 March, indicated a severe central canal stenosis or narrowing at L4/5 (the lumbar vertebrae in the lower back), with degenerative changes and mild bulging of the intervertebral disc.

26. Dr A returned to see Dr C on 18 March. He advised Dr B and Dr A that her spinal condition was best treated surgically with a posterior lumbar decompression and instrumented posterior lateral fusion. In his letter to Dr J, Dr C stated:

> "I have been through this carefully with her husband and her today and I have explained to her the risks and benefits. The risks include, but are not limited to infection, damage to the nerve root, damage to the dura and she is understanding of that."

27. Dr C advised HDC that Dr A indicated a desire to proceed to surgery.

The private hospital

28. On 27 May 2009, Dr A was admitted to the private hospital for the spinal surgery. The admission documentation was entered onto customised hospital forms headed "Discectomy & Decompression Micro Discectomy". The preoperative forms completed by registered nurse Ms K noted that Dr A had anti-embolic stockings, and that her preoperative medications had been prescribed by the anaesthetist, Dr G.

29. RN Ms K completed the "Neurosensory" section of Dr A's Nursing Assessment Record. She noted that Dr A scored 15/15 (which is normal) on the Glasgow Coma Scale (GCS),[7] and that Dr A "sometimes … gets numbness on both legs".

Surgery

30. Dr G started the anaesthetic at 9.54am on 27 May 2009. Dr C and Dr G did not record the time the operation started but they suggest that it was around 10am. The operation concluded at 12.35pm. Dr A was transferred into Recovery, and she was noted to be conscious a few minutes later. Her neurovascular observations were monitored in Recovery and at 2.05pm she was noted to have good power and sensitivity in both legs.

31. Dr C advised HDC that there was a "significant amount of oozing" during the surgery and Dr A lost a "significant amount of blood". As a result, Dr G elected to transfuse her, and this was done in the immediate postoperative period.

32. Dr C recorded the surgery and his postoperative instruction to nursing staff on the form "Surgical Procedure Report", noting:

> "L3/4 L4/5 decomp
> L3–L5 fusion with L4/5 TLIF — very scarred dura.
> **Post-operative Orders (except medication)**
>
> n/v [neurovascular] checks
> Hb [haemoglobin] check as per [Dr G]
> Fluid balance
> Analgesia as per chart
> Monitor urine output
> Eat as ok."

33. Dr A was transferred to the ward at 3pm. Dr G advised HDC:

> "The rationale for transferring [Dr A] to the ward was that she did not appear to require high dependency care. I did not feel that she was haemodynamically unstable in recovery. She is recorded prior to discharge [from Recovery] as having normal activity, adequate respirations, satisfactory circulation, being awake, >96% [oxygen] saturated, and her core temperature >36.5 but <38.5 (i.e. the best possible recovery room discharge score). Additionally she had passed 300mls of dilute urine as recorded on her recovery sheet. I did not feel she was bleeding, as

[7] A neurological scale that aims to give a reliable, objective way of recording the conscious state of a person.

she was haemodynamically stable, and her suctioned drains were 150ml in number 1, and only 50ml in number 2 from 1230–1405 hours. Her dressings are documented as dry with slight ooze ..."

34. Later that day, Dr C dictated a detailed operation record. He noted that a wide decompression and TLIF[8] was performed at L4/5 level, and that good decompression was achieved. Dr C documented further postoperative instructions, stating that Dr A was to have her drain (if used) and the urinary catheter removed at his instruction. She could eat and drink when bowel sounds were heard and flatus passed. Dr A's wound was to be kept clean and dry and covered with a waterproof dressing for seven to ten days, and she was to have a follow-up appointment with Dr C four weeks after the surgery.

Postoperative care — afternoon of 27 May

35. The private hospital has standardised forms for assessing postoperative patients to alert nursing staff to monitor such things as the patient's consciousness levels, and respiratory, haemodynamic, cardiovascular and central nervous systems. These observations are recorded on a Patient Observation Chart.

36. The private hospital has formatted care plans for specific operations. The Care of Post-Operative Orthopaedic Procedures policy (which applies to the immediate postoperative period in the recovery setting) states that neurovascular assessment should be checked at least half hourly and documented.

37. The instructions for Dr A's subsequent care were noted on the "Discectomy & Decompression Microdiscectomy, Day of Operation (Post-Op)" form. This form guides staff on the monitoring of postoperative patients in the ward setting, under a number of systems headings, which included "Haemodynamic and Cardiovascular System" and "Central Nervous System". The "Haemodynamic and Cardiovascular System" section specifies that the patient's pulse, respiration rate and blood pressure is to be monitored half hourly for four hours then hourly for two hours, then four hourly if stable, whereas the "Central Nervous System" section of the form details the observations required to assess the patient's pain levels, but does not specify the frequency of neurovascular recordings.

38. A separate chart, a Circulatory Observation Chart, was used to record the colour, warmth, movement and sensation of Dr A's feet and legs, in accordance with the hospital's spinal surgery clinical pathway postoperative instructions.

39. Dr A's recordings were entered onto the Patient Observation Chart.

40. The private hospital also has an Early Warning Scoring System (EWSS), which is designed to enable staff to evaluate a patient's vital signs of pulse, blood pressure, respiration rate, temperature and state of consciousness for any indication of deterioration, and to alert medical staff if there is a change in score. Although the nursing staff who were assigned the care of Dr A during the evening and night of 27/28 May were aware of the EWSS, they did not use this system to evaluate Dr A's

[8] Transforaminal lumbar interbody fusion.

status, but used the Patient Observation Chart and Circulatory Observation Chart instead.

41. RN Ms K provided the initial postoperative nursing care to Dr A on the ward. At 3.15pm, RN Ms K handed over Dr A's care to RN Ms D,[9] who was working an afternoon duty (2.45pm to 11.15pm) on the ward on 27 May 2009. RN Ms D was assigned the care of Dr A and three other patients. RN Ms K told RN Ms D that Dr A was in pain, and her PCA (patient-controlled analgesia) was not working as her intravenous luer was leaking into the surrounding tissue.

42. RN Ms D went to see Dr A immediately after handover, noted that she appeared pale, and found that her blood pressure was low. The Clinical Nurse Educator was with Dr A, having just inserted a replacement luer which had taken some time to insert. Dr A and Dr B were upset and Dr A was in pain.

43. RN Ms D checked that the PCA was working and encouraged Dr A to use it regularly to get on top of her pain. At 3.30pm, Dr G arrived to assess Dr A. He recorded in the Integrated Progress Notes that she was orientated and appropriately conversing with her husband, and haemodynamically stable with "no evidence of pulmonary overload". Dr G recorded Dr A's vital signs and the amount of her urinary drainage, and noted that she "needs more RBC [red blood cells]".

44. RN Ms D detailed her care of Dr A in the Integrated Progress Notes — Post-op, noting that her observations remained "fairly" stable throughout her shift, apart from a drop in her blood pressure to 84/43mm/Hg[10] at 6pm. (Dr A's blood pressure had been around 105/55 prior to that time.) RN Ms D checked Dr A's neurological status[11] half hourly, noting that this remained unchanged and stable. She also recorded that both of Dr A's feet and legs were a normal colour and warm to touch, and Dr A was able to move them normally, although she reported some numbness of the right lateral lower leg.

45. Dr A had two Redivac[12] drainage bottles draining the operation site. RN Ms D stated that one bottle was changed at 7pm because it was full — containing 600mls. The second bottle contained 330mls. RN Ms D noted that Dr A's blood loss in theatre was estimated at 1200ml. Dr A's blood loss concerned RN Ms D. She contacted Dr C to advise him of her observations and asked him to call into the ward to review Dr A. Dr C told RN Ms D that he and Dr G would see Dr A at 8pm.

46. Dr C and Dr G jointly reviewed Dr A at 8pm. RN Ms D advised HDC that she was in the room all the time that Dr C and Dr G were reviewing Dr A. She recalls that Dr C checked Dr A's neurovascular sensation and said that the numbness was not unusual following this type of surgery.

[9] RN Ms D graduated as a registered nurse with a Bachelor of Health Science in 2000.
[10] Normal adult blood pressure is considered to be 120/70mmHg (millimetres of mercury).
[11] Assessment of patient's limbs for sensation and mobility.
[12] Vacuum drainage system.

47. Dr C stated:

> "[Dr G] and I again reviewed [Dr A] at 20.30 hours [8.30pm]. … At that time she was still found to be comfortable. During surgery I had put two drains in to help prevent the accumulation of any haematomas. At this review at 20.30 hours, the drains were both functional. I also undertook a neurological examination, and at this time she had a little numbness in the L5 distribution of her right foot. This was not unexpected, being entirely consistent with my having manipulated the nerve root to insert the cage at the 4/5 level. I would note that she had no power deficit, having full motor function of her lower limbs and no evidence of perineal sensation loss."

48. Dr C said that he rarely assesses his postoperative patients for perineal[13] sensation, and only if it is clinically indicated. He said that he pulled on Dr A's catheter and found that her sensation was normal, as was the rest of the examination and her recorded observations.

49. Dr C assured Dr A and Dr B that if there were any problems he was only a short telephone call and a very quick trip away from the hospital. Dr B stated that Dr C's examination of Dr A at 8pm was "very casual". He said that Dr C asked Dr A to move her toes, and tugged her catheter and asked her if she could feel it, and that Dr C looked at the drainage bottles, but did not look at the nursing records. Dr B said that if Dr C had looked at the nursing records, this would have alerted him to the abnormal bleeding. He said he had expected Dr C to tell him about the operation. Dr B said that he is a gynaecology surgeon, but has little knowledge of orthopaedics except what he learnt as a medical student. Dr B said, "I was totally in the dark." Dr B said that he asked Dr C what he should look out for, and Dr C replied, "None of your business."

50. Dr C said that he understood that Dr A was to have hourly neurological observations, as is his usual practice with spinal patients. He said that he "gave clear instructions" to the nursing staff that if there was any deterioration in Dr A's condition, or concerns, they were to call him.[14]

51. Dr C did not document his assessment of Dr A or any further postoperative care instructions. He advised HDC that he did not see the necessity to document his review, as Dr G had done so.

52. Dr G documented his review of Dr A in the Integrated Progress Notes as taking place between 8pm and 8.45pm. He recorded his observations of Dr A's neurovascular status, her blood test results, oxygen saturation, and the amount of Redivac drainage. Dr G reviewed Dr A's anti-nausea medication, instructing the nursing staff to give her Gaviscon "if she can take it", and one more unit of red blood cells, then intravenous Plasmalyte. He instructed that her blood pressure and urine output needed to be monitored — the goal was for Dr A to pass 30ml of urine per hour. Dr G noted that he

[13] A perineal sensation check is done to exclude neurological complications.
[14] Dr C's postoperative instructions to nursing staff are noted in paragraph 32.

and Dr C would review Dr A again at 7am on 28 May 2009, and that "any concerns [Dr G's mobile phone number] at anytime".

RN Ms D

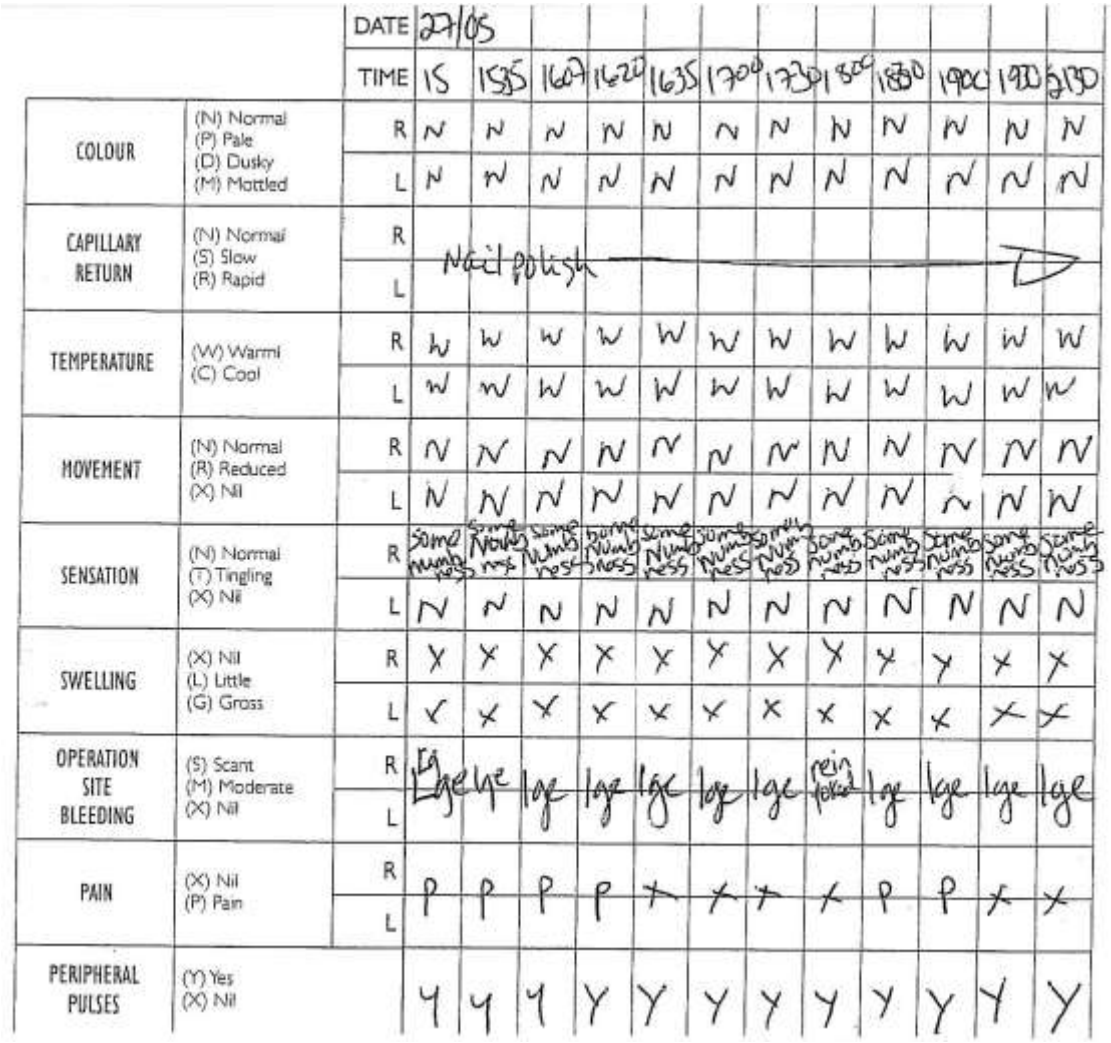
53. RN Ms D stated that Dr A became nauseated during the evening and vomited, and was given antiemetics as per Dr G's instruction. RN Ms D recorded Dr A's vital signs half hourly throughout the afternoon, entering her final recording of Dr A's pulse, blood pressure and respiration rate at 8.40pm. She recorded her observations of Dr A's neurovascular status and blood loss half hourly until 7.30pm. There is then a gap of two hours until RN Ms D made her final record of Dr A's neurovascular status at 9.30pm.

54. RN Ms D stated that if the patient's chart is not at hand she will jot down particulars like observations on a separate piece of paper such as the hourly plan she makes at the beginning of each duty, which is later discarded, and believes that this may account for the gap in the recordings.

55. RN Ms D said that between 9.30pm and 10pm, RN Ms E helped her attend to Dr A's pressure areas and give her a "freshen up". They inspected Dr A's wound dressing and drainage sites. RN Ms D went through all the particulars and details of Dr A's care with RN Ms E, who was to take over Dr A's care for the night shift.

56. At 11pm, RN Ms D recorded the care she had provided to Dr A in the Integrated Progress Notes, noting that all observations were "now stable" and "circ obs satis [circulatory observations satisfactory] apart from numbness in R) leg → Dr C aware".

57. Dr B was present throughout the afternoon and decided to stay overnight in a chair that was brought in for him. RN Ms D entered the following recordings on the Patient Observation Chart:



			DATE	27/05											
			TIME	15	1535	1607	1622	1635	1709	1730	1800	1830	1900	1930	2130
COLOUR	(N) Normal (P) Pale (D) Dusky (M) Mottled		R	N	N	N	N	N	N	N	N	N	N	N	N
			L	N	N	N	N	N	N	N	N	N	N	N	N
CAPILLARY RETURN	(N) Normal (S) Slow (R) Rapid		R	Nail polish											
			L												
TEMPERATURE	(W) Warm (C) Cool		R	W	W	W	W	W	W	W	W	W	W	W	W
			L	W	W	W	W	W	W	W	W	W	W	W	W
MOVEMENT	(N) Normal (R) Reduced (X) Nil		R	N	N	N	N	N	N	N	N	N	N	N	N
			L	N	N	N	N	N	N	N	N	N	N	N	N
SENSATION	(N) Normal (T) Tingling (X) Nil		R	some numbness	some numbness	some numbness	some numbness	some numbness	some numbness	some numbness	some numbness	some numbness	some numbness	some numbness	some numbness
			L	N	N	N	N	N	N	N	N	N	N	N	N
SWELLING	(X) Nil (L) Little (G) Gross		R	X	X	X	X	X	X	X	X	X	Y	X	X
			L	✓	X	Y	X	X	X	X	X	X	X	X	X
OPERATION SITE BLEEDING	(S) Scant (M) Moderate (X) Nil		R	Lge	lge	lge	lge	lge	lge	lge	reinforced	lge	lge	lge	lge
			L												
PAIN	(X) Nil (P) Pain		R	P	P	P	P	X	X	X	X	P	P	X	X
			L												
PERIPHERAL PULSES	(Y) Yes (X) Nil			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

RN Ms E

58. RN Ms E was rostered to work a 12-hour shift, from 6.45pm on 27 May to 7.15am on 28 May 2009.[15] At 11.15pm, she was assigned the care of Dr A. RN Ms E said that she had organised her other patients in the previous four hours she had been on duty, and, "consequently I had plenty of time for what I thought was a conscientious vigil over [Dr A] for 2315 to 0715 hours".

59. RN Ms E stated that her focus was on monitoring Dr A's haemodynamic stability, particularly watching for any bleeding or adverse effects from the intravenous fluids. She did hourly observations of Dr A's blood pressure, pulse, respirations, oxygen saturations, Redivac and urine checks, and four-hourly temperature recordings, which were all within the normal range.

60. Dr B stated that the nurses were reinforcing his wife's wound site during the night. When they freshened up Dr A between 9.30pm and 10pm, he estimated that about

[15] RN Ms E graduated as a registered general nurse in 1964. She was appointed to a permanent RN position at the private hospital in 2002.

one-third of the bed was soaked in blood. He said, "To me it was an abnormal amount of bleeding from a wound site."

61. RN Ms E stated that RN Ms D had told her at handover that Dr A had some numbness of her right leg, and that Dr C was aware of this "but not concerned" about it. RN Ms E said that as Dr C had not recorded in the clinical records that he had checked Dr A's perineal sensation, she was not alerted to this second postoperative concern. RN Ms E stated that, in her experience, this examination is outside the normal routine of a postoperative visit.

62. RN Ms E performed and recorded two-hourly neurovascular observations on Dr A, noting that the colour and warmth of Dr A's legs and feet were normal.

		DATE	29/5/09											
		TIME	mn	2AS.	4AM	6AM	1000	1200	1400					
COLOUR	(N) Normal (P) Pale (D) Dusky (M) Mottled	R	N	N	N	N	N	N	N					
		L	N	N	N	N	N	N	N					
CAPILLARY RETURN	(N) Normal (S) Slow (R) Rapid	R	N	N	N	N	N	N	N					
		L	N	N	N	N	N	N	N					
TEMPERATURE	(W) Warm (C) Cool	R	W	W	W	W	W	W	W					
		L	W	W	W	W	W	W	W					
MOVEMENT	(N) Normal (R) Reduced (X) Nil	R	No ankles feet	No ankle feet	Nil feet ankle	Nil feet ankle	X	X	X					
		L	No feet ankle	No feet ankle	Nil feet ankle	Nil feet ankle	X	X	X					
SENSATION	(N) Normal (T) Tingling (X) Nil	R	No	Nil feet	Nil past ankle	Dull feet not toes	X	X	X					
		L	No	Nil feet	Nil past ankle	Dull feet not toes	X	X	X					
SWELLING	(X) Nil (L) Little (G) Gross	R	X	L	L	L	X	X	X					
		L	X	L	L	L	X	X	X					
OPERATION SITE BLEEDING	(S) Scant (M) Moderate (X) Nil	R	Sm oozes			Sc	Sc	m	-					
		L	Sm oozes			L								
PAIN	(X) Nil (P) Pain	R	X											
		L	X											
PERIPHERAL PULSES	(Y) Yes (X) Nil		✓ ✓											

63. The first four columns of the second page of the Patient Observation Chart (above) were completed by RN Ms E. The entries in the last three columns were added by the day staff.

64. RN Ms E recorded in the Integrated Progress Notes:

> "Pt has feeling only to knees to touch. States nil feeling either foot to touch @ 2.15. … No movement feet @ 2am. …
>
> 4am Touch felt to each ankle.
>
> 6am Touch ankles, dull feet, nil toes each foot — Zero movement below ankles."

65. RN Ms E stated that there was "nothing observable" at 2am, 4am and 6am when she checked Dr A. RN Ms E said that Dr A could move her legs normally, but she could not feel touch below her ankles. RN Ms E said that this deficit was subtle, and she knew from Dr G's note that Dr C and Dr G planned to see Dr A at 7am on 28 May, so she decided to wait and observe. RN Ms E said that there seemed to be an improvement in Dr A's sensation at 6am.

66. At 6.45am, RN Ms E spoke to the day charge nurse about her observations of Dr A's condition, and recorded a tape for the morning shift,[16] detailing Dr A's status to ensure that Dr C had the information he needed.

67. Ms E said that when Dr C entered the room to assess Dr A, she started to tell him about Dr A's condition. He told her to be quiet. Thinking that he had not heard, Ms E again tried to inform him of her observations, but Dr C again told her to be quiet.

68. Dr B said that on the morning of 28 May, his wife was bloated around her eyes and her scalp. He stated that when Dr C and Dr G called to see Dr A at 7am, Dr C asked Dr A to move her toes, but they were not moving. Dr B recalls that when one of the nurses tried to tell Dr C about her observations he told her to be quiet. Dr B stated:

> "[Dr C] tugged on [Dr A's] catheter, but she had no sensation. He tapped her knee — no reflex — and he stormed off."

69. Dr B said that Dr C did not tell him or Dr A anything about her condition until 9.30am, when he called to say that he had the results of the MRI scan and that Dr A needed to go back to theatre. Dr B said that Dr C told him he had scheduled the theatre for 1.30pm. Dr B is unable to remember whether Dr C told him that he was returning Dr A to theatre to evacuate a clot. Dr B said, "He made no mention of cauda equina."

Charge Nurse Ms F

70. Ms F was the acting charge nurse on the ward on 28 May 2009. RN Ms F started work at 6.45am. At the beginning of the shift she took handover from the night staff while she waited for the surgeons to arrive to see their patients.

71. RN Ms F said RN Ms E reported that when Dr A's neurovascular status was checked at midnight she had no movement or feeling on both her ankles down to her feet. RN Ms E showed RN Ms F the observation recording chart, and said that she would stay until Dr C arrived to explain Dr A's overnight condition.

[16] The tape was not provided to HDC as it had been deleted within a short period of the recording being made according to the hospital's usual practice for the reuse of tapes.

72. RN Ms F stated that Dr C arrived in the ward with Dr G at about 7.15am. She accompanied RN Ms E to Dr A's room. Dr B was also present. RN Ms F said:

> "On entering the room, RN [Ms E] tried to explain to [Dr C] about [Dr A's] condition and the circulatory observations, those that she had related to me at handover, but she was told to 'be quiet' by [Dr C]."

Dr C's assessment

73. Dr C stated in his reporting letter of 28 May 2009 to Dr J: "At approximately midnight [Dr A] had deterioration of her neurological status with loss of power in the L5 and the S1 distributions bilaterally. This was not notified to me and on my ward round at 8am the following morning Dr G and I noticed this."

74. Dr C advised HDC:

> "I examined [Dr A]. To my dismay I discovered that she had complete and dense motor loss at L5 and S1 and also L4 was involved in both of her legs. She had numbness bilaterally in both her legs, numbness in her perineum, and also complete loss of sensation of the catheter tube. From this neurological examination, I felt clinically that she exhibited a cauda equina syndrome."

75. Dr G advised HDC that when Dr C reviewed the observation chart he "looked shocked and immediately concerned. I then also realised the enormity of the findings."

76. Dr C did not record in the integrated clinical record his examination of Dr A, his plan for her ongoing care, or the further observations required. In explanation for not documenting these matters, Dr C advised HDC that he was "so horrified and focussing on what needed to be done", and knew that Dr G had made an entry in the notes. Dr C stated that he immediately contacted radiology and organised an MRI scan for Dr A. Dr G stated that at 7.15am he verbally ordered that Dr A be "nil by mouth" but did not annotate this himself.

77. However, in response to the provisional opinion, Dr C stated that after seeing Dr A:

> "I immediately went and wrote clear instructions in the notes at the nurses' station on a piece of [private hospital] paper with [Dr A's] sticker on it as to what the diagnosis was, what the examination findings were and what my plan and expectations were. This piece of paper is now not in the notes. I clearly recall writing it on a loose piece of paper and placing it in [Dr A's] notes."

78. No such note is on the file or in the materials supplied by the private hospital.

79. Dr C stated that after writing the above instructions, he "then called" the operating theatres and was told that there were no theatres available and that they would get back to him. He said that he then arranged an MRI scan, which was done urgently, and that he had the result of the scan by 9.30am, at which stage he again spoke to the operating theatres. Dr C stated:

> "I would like to point out quite clearly that the information I gave the MRI suite was exactly the same information that I gave the operating theatres. I am surprised that the same information conveyed to the MRI technician produced a response whereby they immediately cancelled their list to interpose [Dr A] as soon as possible, while the same information conveyed to [the private hospital] in terms of the requirement for an operating theatre did not produce the same response of them immediately cancelling their elective list. … [This] may be simply explained by a miscommunication, but I do believe that the information I gave the operating theatre staff conveyed the same clear sense of urgency that was appreciated by the MRI suite."

Dr G

80. Dr G recorded in Dr A's clinical notes: "CVS/Resp/Redivac all stable. But reduced plantar flexion of R & L leg [therefore] stat MRI exclude haematoma."

Nursing actions

81. RN Ms F stated that when Dr C asked for an urgent MRI to be organised she did this, and then reassigned Dr A's care to one of the senior registered nurses, Ms L. Dr C left orders for close observation of Dr A until the MRI was performed and further management planned. RN Ms F stated that Dr C did not discuss the result of the MRI scan with her and did not advise her that Dr A was to return to theatre, or the time of the surgery.

82. The Associate Clinical Services Manager, Ms M, advised HDC that on 27/28 May 2009, she was deputising for the clinical services manager, who was on leave. One of the key roles for that position is managing incidents. Between 9am and 9.30am on 28 May, RN Ms F advised her that there had been an incident overnight involving Dr C and RN Ms E. RN Ms F was concerned because Dr A's neurological observations had escalated overnight and had not been reported by the assigned nurse, RN Ms E. Ms M said that RN Ms F told her that an MRI had been arranged, and that Dr C had left the private hospital to go to Hospital 2. Ms M said she advised RN Ms F to clearly document the incident and said that she would contact Dr C.

Hospital 2

83. Dr G said that at around 7.30am he and Dr C decided to go to Hospital 2 to start their list, as the MRI was yet to be done. Dr C and Dr G went to Hospital 2, where Dr C had a list of booked surgical cases.

84. Dr C stated:

> "[Dr A] continued under hourly observations by the nursing staff at [the private] Hospital. As per usual routine, they were aware to call me if there were any concerns or further deterioration. [Hospital 2] is less than 1km from [the private] Hospital, so I could have returned quickly if required."

85. Dr C did not explain how he would be able to return immediately if he was contacted while he was performing surgery on a patient.

MRI results

86. Dr C stated that he spoke to the radiologist who performed Dr A's scan at 9.30am. Dr C said that the radiologist had reviewed the images with a senior musculoskeletal radiologist and their impression was that there was some evidence of slight foraminal stenosis[17] at the lowermost levels that was persistent from the original MRI scan findings, but there was no "gross haematoma or collection seen".

87. However, in his reporting letter to Dr J dated 28 May 2009, Dr C stated: "I ordered an urgent MRI scan and a large hematoma was identified and it was elected to proceed with a washout." In response to the provisional opinion, Dr C stated that a haematoma was present but it "was NOT causing paralysis or compressing the thecal sac".

88. Dr C stated:

> "While the MRI scan results did not conclusively show that there was compression of the thecal sac, I still felt it was important to act on the clinical evidence. I considered the most likely cause of her current situation was that she had developed a cauda equina and that the wound needed exploration and washing out.
> …
>
> After determining that [Dr A] required further surgical intervention, I considered the urgency of her circumstances and where this further surgery was best performed. One option was to transfer her to the public hospital in the area that she lived, which would have been [the public] Hospital. Realistically, however, that would take 1–2 hours to get her to the emergency department, a spinal surgeon would have to be notified and be available, an operating theatre would have to be available, and then surgery would have to be performed. Realistically therefore it would have taken at least 2–4 hours before she would have been able to get into the operating room at a public hospital."

Theatre booking arrangements

89. There is discrepancy in the information provided about the booking of the private hospital theatre for Dr A's second operation, which took place on 28 May, as follows.

90. Dr C's initial response to HDC was that, after obtaining the results of Dr A's MRI and determining that she required further surgical intervention, he discussed the situation with the private hospital theatre staff and was informed that they could make a theatre available to him at approximately 2pm. Dr C said that he thought this time would be equivalent to transferring Dr A to the public hospital, and that it was in her best interests to be operated on by him, and have continued care from him, as he was her primary treating surgeon.

91. Dr C advised that he cancelled his afternoon clinical commitments once Dr A's surgery was scheduled for 2pm. He said, "As no theatre was offered to me at [the private] Hospital to operate on [Dr A] earlier that day I proceeded to go to [Hospital 2] where I performed three cases." Dr C stated that these cases were scheduled to be

[17] Narrowing of the opening where the nerve exits the spinal column.

finished about midday to 1pm, which would have allowed ample time for him to go to the pre-designated theatre at the time that was agreed upon by the private hospital, at 2pm.

92. Dr C later told HDC that he was at Hospital 2 when he called the private hospital's theatre at 9.30am and was told that a theatre could be available at 1.30–2.00pm. He said that Dr G was with him when he made that call.

93. In response to the provisional opinion, Dr C said that he first rang the theatre at 7.30am and was told that there were no theatres available and the staff would get back to him. He then arranged the MRI scan.

94. In a further response to the provisional opinion, Dr C said that when he rang the theatre at 7.30am, no staff were available and no one was there to make a decision about theatre availability. Dr C stated that it was necessary to obtain an MRI before exploring the wound and so he was not ready to return to theatre at 7.30am, and that this call was to alert the theatre that he would later be requiring an urgent theatre.

95. The private hospital submitted that Dr C did not make a call to the theatre staff at 7.30am. The private hospital said that, had Dr C contacted the theatre at 7.30am, he would have been offered a theatre, as there were four operating theatres immediately available.

96. Ms H, the Associate Clinical Services Manager — OR, provided a report to the Sentinel Review on 25 June 2009, stating:

> "On 28/5/2009 [Dr C] called OR and asked for a time to bring a patient back to theatre. I told him that all ORs were working and asked what the patient [was] coming back to theatre for and explained that I could not offer an orthopaedic theatre until late afternoon. I also did not have an experienced orthopaedic team available. He indicated that he did not need an orthopaedic OR and needed basic instrumentation.
>
> I offered him to follow in the first theatre that would finish, which was OR 3 at approximately 1100. He said no to that time and he asked for 1400. At no time did he indicate that this patient needed to be brought back urgently. Theatre was booked for 1400."

97. RN Ms H advised HDC that the theatre lists are organised into morning and afternoon sessions — 8am to 12.30pm and 1pm to 5.30pm. The theatre list for 28 May 2009 provided to HDC shows that a patient went into Theatre 3 at 8.30am and was out at 11am.

98. In a statement dated 8 March 2012, RN Ms H said that her conversation with Dr C took place "at about 9.30am or shortly afterward". RN Ms H recalls that she took the call from Dr C when she was at the theatre front desk, and that the theatre charge nurse, Ms I, was standing beside her at the time. Dr C asked her for a time to "bring a patient (Dr A) back to theatre". RN Ms H stated that RN Ms I was listening to her

conversation with Dr C and agreed that the operation could be done at 11am. RN Ms H recalls that Dr C said he "could not do 11am as he was operating at [Hospital 2] and he asked for a theatre at 2pm". RN Ms H said Dr C did not tell her that this was an emergency "or even urgent". If he had she would have looked at her lists again. She definitely recalls him saying that 11am was "no good for him" as he was operating at [Hospital 2], and he "was the one that gave [her] the time of 2pm".

99. RN Ms H said that the policy for a return to theatre was in the process of being developed, and she followed the specific procedure that was in practice at the time.[18] The procedure required, as a first step: "Obtain from the surgeon information on the urgency of the situation and if urgent. …"

100. RN Ms H stated that if Dr C had called the theatre at 7.30am, then she would have been the person he spoke to. She recalled that Dr C made only one call to theatre, at 9.30am.

101. RN Ms I advised HDC that she recalls Dr C's request for a return to theatre for one of his patients being received early in the day on 28 May. RN Ms I said that a "bring back" is always urgent, but the level of urgent intervention required is individual and assessed at the time of booking. If there is active bleeding it is more serious. Dr C's patient was booked for an evacuation of a haematoma or an exploration. As the timing for the return was later in the day, this identified the return as "semi-urgent". RN Ms I recalls that Dr C was operating at Hospital 2 and that she was told he would "come over to [the private hospital] when he finished his [Hospital 2] list". She said that she had a theatre and team ready and waiting for him from just before lunch, but Dr C's [Hospital 2] list ran over time.

102. Ms M advised HDC that she telephoned Dr C at 10am. He was at Hospital 2 but was able to talk to her. They discussed RN Ms E's failure to report the changes in Dr A's neurological observations overnight. Dr C told Ms M that he had a theatre booked for Dr A for 2pm, and that he was working within a 12-hour window to get her back to theatre. Ms M stated:

> "I specifically asked [Dr C] if he was okay with this time of 2pm and did we need to do anything further. [Dr C] said, no, we didn't need to do anything further and said the time of 2pm was acceptable to him. At no time did [Dr C] give me any sense of urgency or concern about the theatre time of 2pm, nor did he mention Cauda Equina Syndrome."

103. Dr C disagrees with RN Ms H's statement that he did not advise her that this was an emergency, and that he was told that Theatre 3 was available at 11am. Dr C stated, "Even if I had been told that theatre 3 was available, I would not have used it as it is not suitable." He advised HDC, "Clearly I am the orthopaedic surgeon who understands the situation and said it was an emergency." Dr C stated:

[18] The procedure is attached as Appendix C.

> "I do note that when I was having this discussion with [the private hospital] [Dr G] was standing right beside me and I held the phone in my hand and discussed with him the options that were being conveyed to me which was that they could not give me a theatre until 1400 hours. … This discussion was almost a three way conversation with the theatre manager on the other end of the phone and she could hear my discussions with [Dr G] and participated in it. [Dr G] would be able to corroborate that when the possibility of using OR3 was discussed, we both expressed our displeasure."

104. Dr G stated:

> "It is my direct recall that while [at Hospital 2], early mid-morning, vicinity 0930hrs, during a case, [Dr C] took a call from the MRI radiologist. He then rang [the private hospital's] theatre from [Hospital 2's] theatre scrub bay. It is my direct recall that he came straight back to me and asked if 1.30pm for 2pm was okay for me. It is my *direct recall* that he told me that was the earliest [the private hospital] could give us a theatre."

105. Dr G further advised that this conversation took place with Dr C using a cordless telephone while standing beside him. Dr G said that by saying Dr C came back to him, he meant that Dr C turned his head and came back to him to talk to him.

106. Dr G stated that he has no recall of 11am ever being discussed as a time a theatre could be available. He also does not recall Ms M having called Dr C. Dr C recalls the conversation with Ms M, but stated that Ms M "did not at any time speak with [him] regarding the availability of theatre". He stated that Ms H was the only person with whom he discussed this.

107. The private hospital's Chief Operating Officer advised HDC that on 28 May 2009, orthopaedic surgery was being performed in OR1 in the morning only, in OR2 and OR6 for the entire day, and in OR7 for the afternoon only. He stated that there was "plenty of opportunity" to interrupt a list with orthopaedic trained staff if an urgent return to theatre was requested. He said that the private hospital does not maintain an empty, staffed theatre at all times for emergencies, as all their business is pre-planned, elective surgery. However, the private hospital does need to provide care to patients who have undergone surgery at the hospital, and there are processes in place to ensure that this can be achieved. Non-urgent cases can be accommodated at the end of a booked list, but if the case is "very urgent" this can necessitate interrupting the first list that becomes available. The Chief Operating Officer stated:

> "In my years at the private hospital it has always been my observation that if a surgeon believes a patient requires urgent attention in any form, that surgeon will demand that their request is met in a timeframe that they consider suitable and will either stand their ground until that is provided, or if that is not possible, transfer the patient into public to use one of the DHB emergency theatres. Neither do I believe any surgeon with an operating list would refuse another surgeon access for an urgent case, between patients on their operating list."

108. Dr C stated that he had "previously encountered the ire" of another surgeon at the private hospital when he had a major issue with a case that extended his operating time past 1pm, which cut the time of the surgeon following him. He said that he was not advised that theatre staff were obliged to make a theatre available for returns. He was told about this only in subsequent discussions about the private hospital emergency protocols. He said, "In any event, even in the afternoon the private hospital was not prepared to cancel any elective orthopaedic operating list to give me the most appropriate theatre available for this serious complication, and as noted, we had to use OR3 anyway." Dr C stated that he was not aware of any the private hospital policy for the return to theatre of urgent cases.

109. The Chief Operating Officer advised HDC that while this case has prompted the private hospital to define its return to theatre policy, this in fact simply records on paper what has been custom and practice at the hospital. The nursing staff rely on the specialist/surgeon, who has ultimate responsibility for the patient, to define treatment and treatment needs and time frames. Dr C stated that it was the private hospital's responsibility to cancel another elective list if a return to surgery was necessary.

Monitoring of Dr A

110. Dr C stated that there was "absolutely no contact from [the private hospital] to me while I was at [Hospital 2]", and that he was not updated on Dr A's status at any time. He said, "I assume they didn't consider there was any further worrying deterioration after 0720 hours."

111. However, as noted above, RN Ms M said she spoke to Dr C at 10am while he was at Hospital 2, and RN Ms L said she telephoned Dr G at 11.30am to report on Dr A's urinary output, and noted his orders for further medication. Dr G told RN Ms L that Dr A was returning to theatre at 1.30pm, and asked that she be prepared for surgery.

112. At 1.30pm, RN Ms L recorded in the progress notes that Dr A was ready to return to theatre. RN Ms L recorded that Dr A's urinary output was 20mls per hour. The medications ordered by Dr G were given, and RN Ms L noted that Dr A's urinary output increased to 30mls per hour.

Timing of return to theatre

113. Dr B stated:

> "[Dr C's] attitude was careless and callous even after such a serious complication had occurred. He did not return to [the private hospital] until 3.30pm, after completing his operating list in another hospital."

114. Dr C confirmed that Dr A's return surgery, which was undertaken "at about 3pm", was an hour and a half later than he had originally planned. (The records show that Dr A was received in theatre at 3.28pm and left the theatre at 5.50pm.) Dr C was delayed in returning because one of his Hospital 2 patients experienced a complication, which required input from another specialist.

115. Dr C stated:

> "The time of onset of [Dr A's] symptoms at 22.00 hours on 27.5.2009, to the decision made to do surgery based on knowledge of the MRI scan findings, was approximately 12 hours.[19] The experience with postoperative haematoma and developing haematoma is not clear. Most of the literature suggests that surgery is indicated and this should be done within 48 hours. There is some good evidence in the literature that suggests that any time after six hours from onset, the difference in outcome up to 48 hours is negligible. Good functional recovery is usually expected in the motor function after the surgical procedure however bowel and bladder function can continue to be problematic, but may be expected to improve 1 to 2 years after a cauda equina episode. …
>
> The difference in time between the earliest operation at the time and either 14.00 or 15.30 hours was a maximum of four and a half hours. … It is unlikely that the timeframe in which [Dr A's] surgery took place would have made any difference to her clinical outcome. …"

116. In response to the provisional opinion, Dr C provided an academic article[20] suggesting that, in such circumstances, surgery should take place as soon as possible. Spector et al noted: "It is our opinion that surgery should be performed in an urgent manner within 48 hours of the onset of symptoms."

Second surgery

117. Dr G stated that he saw Dr A in the ward prior to the surgery, with Dr C, and noted that she was clinically "puffy" with oedema. He said that this is not uncommon. It is due to an inflammatory response and usually peaks in severity at around 18 hours post "insult". Dr G warned Dr A and Dr B that it might be difficult to intubate Dr A and that she might need to be transferred to the Intensive Care Unit (ICU) postoperatively owing to airway oedema compounding an already potentially difficult airway.

118. Dr C stated that at surgery he found that Dr A had a "well organised haematoma". He thoroughly washed out the wound and again placed two drains into the wound to drain any excess blood collection.

119. At this point, Dr G examined Dr A's airway. He stated that it was immediately clear to him that Dr A would not be safe to extubate at the end of surgery. He contacted the Intensive Care Unit at the public hospital to arrange her transfer and advise that she would be transported intubated and ventilated. Dr G travelled with Dr A to the public hospital but had no further contact with her after her admission.

120. Dr C contacted spinal surgeon Dr N at the public hospital to advise him of Dr A's transfer.

121. Dr B said that he was aware that his wife had a serious complication and, while the second operation was proceeding, he was sitting in her bedroom "all the while anxiously waiting for information". Dr B said that Dr C called him after the operation

[19] The first record of changes was made at midnight.
[20] Spector et al, "Cauda Equina Syndrone" (2008) 16 Journal of the American Academy of Orthopaedic Surgeons, 471, 477.

and told him that Dr A would be going to ICU overnight. Dr B received a second call from Dr C to say that Dr A would be transferred to the public hospital.

122. Dr B stated that he wanted to see his wife before she went to the public hospital, so he went down to the ambulance bay, where he saw Dr C walking to his car. Dr B said:

> "I went up to [Dr C's] car and told him to stop and tell me about [Dr A]. [Dr C] said the reason he was transferring [Dr A] was that she would get better care [there]."

123. Dr B said that Dr C knew that he was a surgeon but, despite this, Dr C gave him no further information about the operation findings and the seriousness of the complication. Dr B said he heard nothing further from Dr C after his wife was transferred.

The Public Hospital

124. Dr A was admitted to the public hospital at 6.21pm on 28 May 2009 with a primary diagnosis of L3, L4 and L5 decompression, and a secondary diagnosis of postoperative haematoma with cauda equina compression.

125. Dr N managed Dr A's care. He ordered another MRI scan and discussed the result with Dr C, assuring him that there were no other compressive elements to her spine, and that the screws and cage were in a satisfactory position.

126. Dr A remained in ICU, intubated, for four days before it was considered safe to extubate her and transfer her to the ward. In the ward, Dr A was mobilised with physiotherapy and made good progress.

127. Dr C visited Dr A a number of times while she was at the public hospital.

Rehabilitation

128. On 12 June 2009, Dr A was transferred to a spinal rehabilitation unit with a diagnosis of cauda equina syndrome. Dr A was discharged from the spinal unit on 21 July 2009.

129. Dr A advised HDC that she requires intermittent catheterisation and manual bowel evacuation. Dr A said that she also suffers ongoing neuropathic pain in her feet and perineum, and cannot sit for any length of time without experiencing pain.

Additional information

The private hospital — actions taken

130. The private hospital conducted a Sentinel Event Investigation (SEI) into this case. A Sentinel Event meeting was held on 30 June 2009, chaired by Dr O, Medical Advisor for the private hospital, and attended by Dr C, Dr G, Ms M and RN Ms F. Dr O advised the attendees that the purpose of the meeting was to discuss and enquire into the care of Dr A, but not to attribute blame to the clinical and nursing care given to this patient.

131. The SEI report summary noted that Dr A's neurovascular observations showed changes from 9.30pm to midnight. The night shift observations continued from

midnight, on a second sheet of the patient Observation Chart, which was stapled on top of the first sheet. The investigation considered that this may have affected the decision-making of the night shift RN, but could not account for the RN failing to consider the seriousness of the continued sensory loss and newly documented motor loss, or why she did not alert the duty manager and surgeon.

132. The SEI also considered the issue of the delay in returning Dr A to theatre on 28 May. The report noted, "If the first time offered had been accepted this would have been within the 12 hour window in treating a Cauda Equina syndrome. … This will be significant when assessing the outcome of this case."

133. Dr O advised HDC that his role as Medical Advisor to the private hospital includes ensuring all sentinel events within the private hospital are reviewed and presented to the Morbidity and Mortality Committee.

134. Dr O stated that should a patient require an urgent return to the operating theatre, ensuring access is a process based on the surgeon's clinical assessment, and the steps taken are:

- The surgeon makes contact by telephone or in person with the theatre charge nurse or duty manager if after hours.
- The surgeon makes a clear unequivocal request for an urgent return to theatre.
- The priority/urgency and availability of theatre and staff are discussed, which would identify whether a theatre was immediately available or when next available. It is the surgeon's responsibility to determine that the arrangements are satisfactory, and if not seek more urgent access or explore alternatives.

135. Dr O said, "It has been my experience that in any hospital every effort is made to accommodate such requests. … [T]he first available theatre will be offered; surgical colleagues and teams without exception, will alter their schedules to accommodate the emergency".

Changes made

136. The orthopaedic clinical nurse educator was transferred to the ward to take up the position of temporary charge nurse, and another clinical nurse educator was assigned to the ward to provide clinical support. Ongoing capability programmes have been introduced to the orthopaedic/general surgery nurse capability building programme including operative complications of orthopaedic surgery. The registered nurse IPS orientation handbook and competency checklists have been revised. The following policies/procedures were also reviewed and amended:

- Urgent Return to Theatre During Business Hours
- Clinical Care Pathway — Spinal Surgery
- Clinical Care Pathway — Discectomy/Decompression/Microdiscectomy.

137. The private hospital audited this case and provided a Morbidity & Mortality Report, which was discussed at the Clinical Advisory Board (CAB) meeting on 18 November 2009. It was noted at the CAB meeting that a family meeting had been held and that a

further meeting between the surgeon, the anaesthetist and the patient's husband was intended. At the time of the meeting in November, the CAB was awaiting a report from Dr C. On 25 March 2010, Dr C wrote to the Medical Advisor, responding to the questions posed by the CAB.

Credentialling

138. The private hospital has a credentialling policy which is an application process to determine that the doctor/specialist is a duly qualified, registered medical practitioner with appropriate qualifications and training. It is expected that all doctors who provide care to patients in the Operating Rooms, Procedural Theatres and Inpatient Suite are credentialled.

139. On 5 June 2006, Dr C signed his acceptance of the private hospital's by-laws for attending medical and dental practitioners, and the Code of Ethics.

Clinical pathways

140. The private hospital has a spinal surgery clinical care pathway, which is part of the clinical record for each patient undergoing spinal surgery. The clinical pathways are based on best practice, and consist of checklists to guide staff through the admission, preoperative and postoperative periods, and discharge.

Policies and procedures

141. The private hospital's spinal surgery clinical pathway in the postoperative care policy specifies that the patient's vital recordings of temperature, pulse and blood pressure should be monitored half hourly for two hours, hourly for two hours, and then if stable four hourly. These recordings, as well as respiration rate and oxygen saturation, are entered on a patient Observation Chart. The spinal surgery clinical pathway also instructs that the patient's "CWMS" (colour, warmth, movement and sensation) are to be monitored four hourly and entered on to the Circulatory Observation Chart. This chart records the neurovascular assessments of the patient's limb/s, for colour, temperature, capillary refill, pulse, sensation and mobility.

142. The private hospital has a policy, "Care of Post-Operative Orthopaedic Procedures", which applies to the immediate postoperative period in the recovery setting. The policy details the routine assessments and observations to be carried out postoperatively to assess the patient's surgical site and neurovascular integrity, and states that the patient's neurovascular assessment should be checked at least half hourly and documented. It states, "Notify Surgeon regarding deficits that were not present pre-operatively." However, the preadmission form does not have any reference to preoperative neurological symptoms or signs. The policy provides instruction on assessing for Compartment Syndrome and Deep Vein Thrombosis, but does not provide any information about cauda equina syndrome.

143. The private hospital's Escalation of Care policy instructs staff that when a patient's status or progress causes concern, or where the patient's progress deviates from the management pathway, the primary team should not hesitate in seeking further opinion. Where there are nursing concerns, the Clinical Charge Nurse or Duty Manager should be advised and communicate with the patient's primary team or the

nominated alternative. The Clinical Services Manager, Clinical Charge Nurse or Duty Manager are authorised to "take such action as is deemed necessary in the interests of the patient, including a request for attention by an available doctor".

RN orientation

144. The private hospital provides nursing staff with an orientation handbook. The front page of the handbook states that it is the RN's responsibility "to actively seek out to complete all items and the information required (e.g. Policies and Procedures) to complete the orientation to the private hospital's IPS (inpatient systems) and obtain the signatures from your preceptor/assessor to get this booklet signed off". The booklet is to be presented at the RN's three-month appraisal.

Competency checklists

145. The ward has competency checklists for RNs, which cover such topics as orthopaedic clinical skills.

RN Ms D

146. RN Ms D advised HDC that it is not uncommon at the private hospital to have scant postoperative orders, lacking in detail. She said that she has needed to contact consultants to ensure the correct care and treatment is carried out. She said that when she is unsure about the required care, she usually talks to her colleagues, the nurse educators, duty managers or other relevant staff, or sources the information in the relevant documents such as clinical pathways.

147. RN Ms D stated: "I do however find it somewhat degrading, when trying to do your job to the best of your ability and by being pro-active in seeking information, to be laughed at by the consultant over the phone, as has happened in the past with the consultant related to this case."

148. RN Ms D stated:

> "I have reflected on this incident and have learned to be more direct in questioning Consultants regarding post-operative expectations and potential complications and will be more pro-active in asking questions when in doubt about any aspect of patients' care. …
>
> I have also reflected on documentation of recordings and I now endeavour to ensure that I document all recordings as they are taken and double check at the end of the shift that they are documented in the correct place. Any recordings that I feel are not within parameters I discuss with the appropriate person."

RN Ms E

149. RN Ms E stated that if the nursing staff had known that Dr C had checked Dr A's perineal sensation when he saw her at 8.30pm, this would have been a significant alert of a second postoperative surgical concern. The staff had been advised that Dr A's "bit of numbness" to the top of her right foot was probably related to tension on the L5 nerve from the cage used during the surgery.

150. RN Ms E advised HDC that the first she knew that there had been a major problem with Dr A was when the Associate Clinical Services Manager, Ms M, contacted her at 7am on 29 May. Ms M told RN Ms E that Dr C had made a complaint against her for not contacting him during the night about the anomaly in Dr A's neurovascular observations. Dr C had said that the delay had "badly impacted" on the "twelve-hour window of opportunity". RN Ms E said, "I was totally shocked to hear … the outcome and the outline of [Dr A's] second operation and her transfer intubated to [the public hospital] Intensive Care Unit."

151. RN Ms E stated that since these events she has been "pondering the following points that possibly shaped my thinking both that night and subsequently". The issues she has considered are:

- There was no surgical appraisal of Dr A's condition at 8pm.
- There was no mention of the "cage" metal-ware in the first operation note, but the entry of "scarred dura" made her wonder if that was connected to the neurovascular observations she made.
- Whether she interpreted Dr G's "no coagulopathy" as meaning no adverse clotting at the site.
- Her major concerns were Dr A's considerable blood loss and postoperative fluid replacement.
- Hourly checks of the Redivac drains indicated that the bleeding had settled.
- She had highlighted the neurovascular anomaly, brought it to the attention of the oncoming charge nurse, and waited to report it to Dr C at the prearranged review at 7am.

152. RN Ms E stated that she would like Dr B's suggestions regarding changes to the Circulatory Observation Chart to be adopted — that the chart contain information about what constitutes a medical emergency, the nature of cauda equina and when to ring a surgeon, and guidelines regarding the frequency of routine checks. She suggested that the guidelines could be tabulated like the Early Warning Scoring System. RN Ms E stated:

> "I am sorry that although I picked up the anomaly in [Dr A's] neurovascular observations, I did not think of clotting occurring in the spinal column and its urgency. … The main lesson I have learned from nursing [Dr A] is an erasable one; this is that changes in the neurovascular observations can signal a dire emergency and require an emergency medical review. …
>
> I am so sorry for the pain and suffering that [Dr A] has had to endure and for the angst for [Dr B] and their family. I apologise for my part in this tragedy."

Dr C

153. Dr C advised HDC that he was available to operate on Dr A at any time in the morning or the afternoon of 28 May 2009. He said, "The operating time was based upon that being the operating time I was offered by [the private hospital], which would have been the equivalent time, if not earlier, than could have been offered at a

public hospital if I had elected to transfer Dr A." Dr C stated that he decided that it was in Dr A's best interests that he continue to manage her case and her surgery.

154. In response to the provisional opinion, Dr C stated that it is important to emphasise that there was no clear diagnosis in this case. He said that the impression that the radiologists had when reporting Dr A's MRI of 28 May was that there was some evidence of foraminal stenosis but "no gross haematoma or collection seen". Dr C said he subsequently reviewed the MRI himself, and obtained the opinions of colleagues, and all were of the same opinion that there was no direct evidence of a haematoma compressing the cauda equina. He said that it is important to note that the return to theatre was for an exploration of the wound, and although Dr A had cauda equina syndrome there was no MRI indication of this. Dr C said:

> "I to this day do not know what caused the neurological deterioration. … For the reasons previously stated, because there was no haematoma and more than 6 hours had passed since the commencement of her dense neurological deficit, the timing of [Dr A's] return to theatre likely made absolutely no difference to her outcome."

155. Dr C advised HDC that since these events he has:

- requested an independent review of his notes by an orthopaedic surgeon
- spent half a day going through spinal surgery complications with another hospital's nursing staff, and talking to physiotherapists and occupational therapists about the management of common spinal problems for patients in the postoperative setting
- contacted the Medical Council of New Zealand for recommendations for appropriate communication courses
- advised the private hospital management that he does not want any of his future patients cared for in the ward
- made himself available to the private hospital to support and teach "in any way".

156. Dr C stated:

> "I have discussed this tragic case, anonymously, with my peers. I have also discussed it with numerous spinal orthopaedic surgeons. … I have specifically asked them if they felt that timing of the surgery after 12 hours of neurological compromise would have made a difference. Their response has been it is unlikely that it would have made any difference whatsoever. …
>
> My heartfelt sympathy and my deepest regrets go to [Dr A] and [the family]. I wish her nothing but the best for continued improvement in the future."

ACC

157. On 26 August 2009, ACC accepted Dr A's treatment injury claim cover for L3 paraplegia resulting from cauda equina syndrome secondary to postoperative haematoma formation.

Responses to provisional opinion

Dr A and Dr B

158. Dr A and Dr B responded to the provisional opinion via a face-to-face interview. Their comments have been added to the report where relevant.

RN Ms D

159. RN Ms D did not provide a response to the provisional opinion.

Ms E

160. RN Ms E provided HDC with a written apology for Dr A and Dr B, which was forwarded to them on 18 December 2011. RN Ms E's clinical nurse educator confirmed that she has conducted a review of RN Ms E's practice. RN Ms E's comments on the provisional opinion have been added to the report where relevant.

Dr C

161. Dr C provided a written apology for Dr A and Dr B, which was forwarded to them on 9 February 2012. Dr C advised HDC that he has undertaken a communications course and has had his clinical documentation reviewed as recommended.

162. Dr C stated that he had requested that an orthopaedic surgeon colleague conduct an independent review of his notes. Dr C's additional comments on the provisional opinion have been added to the report where relevant.

163. Dr C provided an opinion by an orthopaedic surgeon which stated that "an early return to the operating room would be highly recommended" and that "such cases should be re-explored and as soon as possible after the diagnosis is made".

164. Dr C stated that he has now given up his credentialling at the private hospital.

The private hospital

165. The private hospital submitted that it had adequate systems in place. However, the private hospital stated that it wishes to emphasise that this submission "should not be taken, in any way, as the private hospital resiling from an acknowledgement that the care [Dr A] received whilst she was at [the private] Hospital was not acceptable", and that the private hospital "deeply regrets this".

166. The private hospital provided a consultant orthopaedic surgeon with relevant clinical records relating to this case and asked him to provide expert opinion on various aspects of the care provided to Dr A by the private hospital and Dr C.

167. The private hospital also asked a registered nurse who has specialist knowledge in surgical nursing to provide expert opinion on aspects of the care provided to Dr A.

168. The private hospital's further submissions and comments on the provisional opinion have been added to the report where relevant.

Relevant standards

169. Nursing Council of New Zealand (2007) Competencies for Registered Nurse Scope of Practice.

> "Competency 1.1 Accepts responsibility for ensuring that his/her nursing practice and conduct meet the standards of the professional, ethical and relevant legislated requirements. …
>
> Indicator — Demonstrates knowledge of, and accesses, policies and procedural guidelines that have implications for practice. …
>
> Competency 2.2 Undertakes a comprehensive and accurate nursing assessment of clients in a variety of settings. …
>
> Competency 2.3 Ensures documentation is accurate and maintains confidentiality of information.
>
> Indicator — Maintains clear, concise, timely, accurate and current client records within a legal and ethical framework.
>
> Competency 2.6 Evaluates client's progress toward expected outcomes in partnership with clients.
>
> Indicator — Identifies criteria for evaluation of expected outcomes of care. …
>
> Competency 2.8 Reflects upon, and evaluates with peers and experienced nurses, the effectiveness of nursing care.
>
> Indicator — Identifies one's own level of competence and seeks assistance and knowledge as necessary."

170. Medical Council of New Zealand (2008) *Good Medical Practice. A guide for doctors*.

> "**Medical care**
>
> **Providing good clinical care**
> In providing care you are expected to:
>
> …

make good use of the resources available to you.

Keeping records
You must keep clear and accurate patient records that report:

- relevant clinical findings
- decisions made
- information given to patients
- any drugs or other treatment prescribed.

Make these records at the same time as events you are recording or as soon as possible afterwards."

Opinion: No breach — RN Ms D

171. Ms D was the registered nurse assigned to provide postoperative care to Dr A at the private hospital from 3.30pm to 11.15pm on 27 May 2009. At handover at 3.30pm, RN Ms D had been advised by RN Ms K about the postoperative care Dr A required.

172. Dr A's orthopaedic surgeon, Dr C, expected Dr A to have hourly neurological observations, as is his usual practice for his spinal patients. However, he did not provide any written instructions for the nurses to follow regarding his preferences for Dr A's postoperative care.

173. The private hospital has formatted care plans for specific operations. Dr A's care plan was for "Discectomy & Decompression Microdiscectomy", which instructed nursing staff to monitor Dr A's pulse, respirations and blood pressure half hourly for two hours, then hourly for two hours, and then four hourly if stable. Her temperature was to be taken on her return to the ward, then hourly for four hours and four hourly thereafter.

174. The instructions for staff to monitor and record Dr A's neurovascular recordings and her pain levels were recorded on the "[The private hospital] Discectomy & Decompression Microdiscectomy, Day of Operation (Post-Op)" form, under a number of systems headings. One of these headings — Haemodynamic and Cardiovascular System — specifies that the patient's pulse, respiration rate and blood pressure is to be monitored half hourly for four hours then hourly for two hours, then four hourly if stable. Another heading — Central Nervous System — details the neurovascular observations required to assess the patient's pain levels, but does not specify the frequency of recordings.

175. RN Ms D went to see Dr A immediately after handover. She continued Dr A's neurovascular and vital sign observations throughout the afternoon, recording the neurovascular observations approximately every half hour from 3pm until 7.30pm. RN Ms D noted that Dr A had some numbness to her right foot.

176. At 7pm, RN Ms D was concerned about Dr A's blood loss and advised Dr C about her concerns. Dr C advised RN Ms D that he and Dr G would come up to the ward to review Dr A.

177. At 8pm, Dr C and Dr G visited Dr A. RN Ms D was present for some of the time that Dr C and Dr G reviewed Dr A. Dr C checked Dr A's neurovascular status, observing that she had some numbness to her right foot in the L5 distribution area. He was unconcerned about this numbness, which he considered was consistent with the manipulation of the nerve root. Dr C later stated that he also checked Dr A's perineal sensation and found no evidence of sensation loss. Dr C did not record his 8pm examination of Dr A, but instructed that he was to be called if there was any deterioration in her condition.

178. Dr G again recorded his observations, noting that he wanted Dr A's blood pressure and urinary output monitored. Dr G noted that he and Dr C would review Dr A again at 7am the next morning, but he could be contacted at any time on his mobile telephone if there were any concerns.

179. RN Ms D's final recorded observation of Dr A's vital signs of temperature, pulse, blood pressure and oxygen saturation, was at 8.40pm. Her final, recorded assessment of Dr A's neurovascular signs of colour, warmth, movement and sensation, was at 9.30pm. RN Ms D was unable to explain why there was no record of any observations after 9.30pm. She believes that she monitored Dr A's recordings again at 10pm, because at this time, RN Ms E assisted her to "freshen up" Dr A and check her wound dressing and drainage sites. RN Ms D explained that if the patient's file was not at hand when she was taking recordings she would jot recordings on a separate sheet of paper such as the hourly plan she started at the commencement of the shift, which would later be discarded. She said that this may have occurred at around 10pm.

180. RN Ms D made her final entry in Dr A's Integrated Progress Notes — Post-op, at 11pm, noting that Dr A had some numbness in her right leg, which Dr C was aware of, and handed over to RN Ms E.

181. My independent registered nurse expert adviser, Megan Polglase, who has special expertise in surgical care, advised that RN Ms D's assessment, interventions and their effect were clear and concise, and her documentation of Dr A's observations was timely and accurate. Ms Polglase noted that RN Ms D decreased the frequency of Dr A's observations during the shift. She commented that the private hospital's clinical pathway states that on day one post-operation the vital observations of pulse, blood pressure and respiration rate can reduce to four hourly if stable or otherwise indicated. Ms Polglase commented that there seemed to be an assumption that this applied to the neurovascular recordings as well.

182. Ms Polglase advised that RN Ms D's assessment and monitoring of Dr A's postoperative condition was undertaken competently. Her documentation in the integrated progress notes was clear, accurate and current with her patient's needs, and complied with the Nursing Council of New Zealand's competencies for registered

nurses. Ms Polglase advised that, with the minor reservation of the change in frequency of the neurovascular recording, RN Ms D met the professional standards.

183. I accept Ms Polglase's advice. Accordingly, in my opinion, RN Ms D did not breach the Code.

Opinion: Breach — RN Ms E

Introduction

184. Dr C did not provide any verbal or written instructions for the nurses to follow regarding his preferences for Dr A's postoperative care, although he told HDC that he expected Dr A to have hourly neurological observations, as is his usual practice for his spinal patients.

185. The private hospital has standardised forms for assessing postoperative patients to alert nursing staff to monitor such things as the patient's level of consciousness and respiratory, haemodynamic, cardiovascular and central nervous system observations. These observations are recorded on a Patient Observation Chart.

186. Dr A's neurovascular recordings of CWMS (colour, warmth, movement and sensation) of her feet and legs were recorded on a Circulatory Observation Chart, according to the hospital's spinal surgery clinical pathway postoperative instruction.

187. The private hospital's spinal surgery clinical pathway, "Care of Post-Operative Orthopaedic Procedures" policy details the routine postoperative assessments and observations to be carried out to monitor the surgical site and neurovascular integrity following spinal surgery. The procedures to be followed in the immediate postoperative period in the recovery setting are set out in the "Care of Post-Operative Procedures", and the procedures thereafter in the ward are set out in the "[The private hospital] Discectomy & Decompression Microdiscectomy, Day of Operation (Post-Op)" form. The policy instructs nursing staff to report any deficit not present preoperatively.

Follow-up of observations

Vital recordings

188. RN Ms E took over the care of Dr A at about 11.15pm on 27 May 2009, and conducted her first set of clinical recordings at midnight. Dr A had scant bleeding from the operation site and her vital recordings of temperature, pulse, blood pressure and respiration rate were within the normal range.

189. By 3am the systolic blood pressure recording was 88mmHg, and there was 5ml deficit of urine over one hour; however, RN Ms E stated that she deemed that to be marginally below the parameters set by Dr G. Therefore, she considered that there was no reason to notify Dr G and no interventions to annotate. RN Ms E stated that she believes that not many RNs would have contacted the anaesthetist with a single and minimal deficit, as this was. Additionally, Dr A did not have any hypotensive

signs, like clamminess, to prompt RN Ms E to report and escalate the frequency of the blood pressure recordings.

190. RN Ms E stated that the two-hourly average of Dr A's urinary output did meet the 30mls/hour goal Dr G set, and therefore her assessment and evaluation of Dr A's urinary output was adequate. RN Ms E noted that although she did not record the 6am and 7am individual volumes, "the volume of urine was still measurable from when the catheter bag was emptied at 5am".

Neurovascular observations

191. At about 11.15pm, RN Ms E noted that Dr A had no movement or sensation in both feet and ankles. This was a notable change from the record at 9.30pm, when Dr A had only some numbness in her right leg, and RN Ms K's earlier note in Dr A's Nursing Assessment Record.

192. My independent expert nursing adviser, Megan Polglase, noted that it would be usual practice to increase the frequency of neurovascular observations when deterioration in condition is noted. Ms Polglase advised that the fact that RN Ms E did not increase the frequency from two hourly during the night shows a deficit in her knowledge and understanding of neurovascular observations and the implications of these changes, such as the serious risk of cauda equina syndrome.

193. At 2.15am, RN Ms E recorded in the Integrated Progress Notes that Dr A had no feeling in her feet and was unable to move them. At 4am, Dr A was able to feel touch on her ankles. At 6am, although Dr A was able to feel RN Ms E touch her ankles, the sensation in her feet was dull and she had no feeling in her toes, and no ability to move her feet below the ankle.

194. It appears that RN Ms E was falsely reassured by Dr C being unconcerned about the earlier numbness of Dr A's foot. Although Dr A's loss of movement and feeling continued until 6am, RN Ms E did not see this as a failure of her neurovascular status. RN Ms E stated:

> "The colour and warmth of the legs and feet was normal. [Dr A] could also move her legs normally but could not feel 'touch' below her ankles. On closer observation I noted she could not move her feet. Due to the fact that it seemed subtle to detect I elected to wait and observe. Nothing observable changed at 0100 and 0400 hours and at 0600 hours I have written in the nursing notes — 'touch ankles, dull feet, nil toes. Zero movement below ankles'. This seemed like a tiny improvement in sensation."

195. In response to the provisional opinion, RN Ms E stated that when she recorded that the loss of movement had been subtle, she did wonder what precisely Dr A's previous ankle movement had been. She said that at this point she elected to observe to pick up a pattern of escalation or de-escalation. She said that Dr A's colour, warmth and vascular return in both feet were normal. However, RN Ms E acknowledged that she should have increased the frequency of the neurovascular observations when she noted that Dr A had no sensation or movement in both feet. RN Ms E said that in hindsight this was clearly a situation requiring urgent medical review and more

frequent observations. She said that in future she would "most certainly" contact the surgeon and the duty manager immediately.

196. Ms Polglase noted that Dr A's neurovascular deficit — loss of movement and sensation in both feet — which was a change from the previous observations, was noted at midnight. She stated that Dr A's loss of sensation or mobility should have raised concern with RN Ms E about the possibility of nerve damage. Ms Polglase noted that the Care of Post-Operative Orthopaedic Procedures policy states that neurovascular observations should be checked at least half hourly and documented, and that the surgeon is to be notified if any deficits are noted that were not present preoperatively.

197. HDC has subsequently been advised by the private hospital's Associate Clinical Services Manager that the Care of Post-Operative Orthopaedic Procedures policy relates to care provided in PACU/Recovery Unit. It was never intended for ward staff. She said that the new revised Clinical Pathway observation directive for ward nurses states that the frequency of Day of Operation postoperative neurovascular checks for spinal surgery is, "Check CWMS 4 hourly — record on the Circulatory Observation Chart."

198. I accept that the policy "Care of Post-Operative Orthopaedic Procedures" was not available to RN Ms E, and that her monitoring and observations of Dr A's postoperative care were determined by the Clinical Pathways and the surgeon preference folder.

199. RN Ms E said that if Dr C had documented that he had checked Dr A's perineal sensation, she would have been alerted to monitor Dr A's neurovascular status more closely, and it would have been a signal for her to implement the spinal nerve checking procedure. She stated that, in her experience, checking of perineal sensation by a surgeon is not part of the normal routine procedure of a postoperative visit to a spinal surgery patient.

200. Notwithstanding Dr C's failure to record this, there was convincing evidence on the observation recording form that Dr A's neurovascular status had deteriorated during the period RN Ms E was monitoring her. RN Ms E did not recognise the significance of the changes. She did not report her observations to the duty manager. RN Ms E did not escalate her concerns until the change of shift at 6.45am, when she advised the morning shift charge nurse about Dr A's neurovascular observations during the night, and stayed on the ward so that she could speak directly to Dr C.

201. Ms Polglase stated that RN Ms E was remiss in not contacting Dr C in a timely manner to ensure that Dr A had access to appropriate and timely care, and that her actions did not meet professional standards in her assessment and monitoring of Dr A's postoperative condition on 27/28 May 2009. Ms Polglase advised that, at the very least, RN Ms E should have discussed her observations with the duty manager, and this lack of action by RN Ms E would incur moderate disapproval from her peers.

202. I agree that the deterioration in Dr A's condition should have prompted RN Ms E to call Dr C, regardless of the time. She should not have waited until Dr C's morning ward round to report her observations.

Documentation

203. Ms Polglase advised that RN Ms E's standard of documentation was poor. Dr A's neurovascular deterioration was first noted at midnight, but RN Ms E did not document this in the nursing progress notes. Ms Polglase stated that this should have been noted at the time, as well as the expected outcome — to contact Dr C and act on his instructions.

204. In addition, RN Ms E's documentation of her assessments, interventions and their effect were unclear. For example, at 3am Dr A's systolic[21] blood pressure dropped to under 90mm/Hg, and her urinary output slowed to 28mls per hour. RN Ms E did not document this change or the action she intended to take if this situation continued, even though Dr G had clearly documented his goal to maintain Dr A's blood pressure at more than 90 systolic and her urinary output at 30mls per hour, and to be informed if there was any change. RN Ms E did not increase the frequency of these observations to monitor this change more closely, and did not notify Dr G.

205. In her response to the criticism of her standard of documentation noted in the provisional opinion, RN Ms E admitted that she let the patient's sleep needs have a higher priority and, rather than increase the frequency of neurovascular recordings, "unfortunately, I did 2 hourly neurovascular recordings". She stated that she wanted to make the following points regarding HDC's expert's comments:

> "Clinical pathways are a checklist of the normal pathway of recovery. By signing all the boxes, the nurse's tasks and cares for that patient communicate the signed-box information in a methodical and accountable way. This, therefore, leaves a permanent record of the patient's progress, duty by duty, day by day. Clinical Pathways were introduced to the private hospitals around the 1990s in order to cut down the narrative style of writing. … There is, of course, space for the documentation to be expanded and further documentation flows on to the Integrated Progress Notes and I have written in this to record my night duty nursing of [Dr A]. … For my night duty nursing of [Dr A] I have completed filling out her Clinical Pathway notes. I have written seventeen lines of information on the Integrated Progress Notes. I believe I have given a very clear picture of what I did and how [Dr A] was overnight."

206. The private hospital has an Early Warning Scoring System (EWSS), a tool to help identify patients at risk of deterioration, which assesses changes in the patient's heart rate, blood pressure, and urinary output (when catheterised), as well as other vital signs. If RN Ms E had implemented the EWSS, although it is not designed to evaluate neurovascular status, it would have provided her with further evidence that Dr A's condition was deteriorating.

[21] Upper blood pressure reading.

207. RN Ms E acknowledged that she did not continue to complete the EWSS; however, she said that the EWSS would not alert staff to the onset of cauda equina syndrome. The EWSS is based on the other recordings on the chart, and can easily be ascertained retrospectively. RN Ms E stated that Dr A's EWSS at 3am was 2, which is commonplace postoperatively and does not require review.

208. At the time that Dr A's sensation and movement changed, RN Ms E had stopped recording Dr A's pain status and peripheral pulses. She also did not complete the Circulatory Observation Chart, and did not record Dr A's urinary output for 6am and 7am, despite Dr G's instructions.

209. Ms Polglase stressed the importance of accurate documentation, noting that the registered nurse scope of practice requires a nurse to ensure that documentation is accurate, clear, concise, and timely, and within a legal and ethical framework. Ms Polglase stated:

> "In my opinion, documenting in the clinical care pathway integrated notes chronologically throughout the shift as assessments were made, may have highlighted a need for reporting earlier. Nurses need to communicate to all health care professionals the plan of care, the assessment, the interventions and the effectiveness of those interventions. These were not documented.
>
> In this instance, [Ms E's] documentation did not meet professional standards and this conduct would be viewed by her peers with moderate disapproval."

210. I note that the Sentinel Event Investigation (SEI) report considered that the arrangement of Dr A's Observation Chart sheets, with one on top of the other, may have affected RN Ms E's decision-making. I do not accept that because the earlier recordings were not obvious, this excused RN Ms E's poor decision-making.

Summary

211. The service that RN Ms E provided to Dr A on the night of 27/28 May 2009 fell short of a reasonable level of care and skill when she failed to recognise the significance of the changes in Dr A's neurovascular status from midnight, and did not contact Dr C, or report her observations, until the change of shift at about 6.45am.

212. RN Ms E submitted that the 17 lines of information she wrote in the Integrated Progress Notes gave a clear picture of what she did and of Dr A's progress overnight. However, Ms Polglase advised me that "[Ms E's] documentation of her assessments, interventions and their effect were unclear". RN Ms E's narrative in the Integrated Progress Notes was scant, and she continued to record Dr A's neurovascular deficit and the changes to her blood pressure, but did not record any critical evaluation of these observations or plan of action. Additionally, she did not record some of the vital assessments that she should have been making, such as Dr A's urinary output, despite Dr G's instruction that this was to be done. In my view, RN Ms E's documentation did not meet the expected standard.

213. The Nursing Council of New Zealand's (NCNZ's) domains of competence for registered nurses states that the RN must maintain clear, concise and accurate records,

identify his or her own competence and seek assistance when necessary. RN Ms E did not do so. I am advised that these departures from the professional standards would be viewed with moderate disapproval by her peers.

214. RN Ms E has apologised for her part in this tragedy, and acknowledged that she has learnt valuable lessons from the events.

215. In my opinion, by her failure to act in a timely manner and seek assistance for Dr A when she observed the abnormal clinical signs, RN Ms E breached Right 4(1) of the Code. Her failure to record all assessments, a critical evaluation of the observations, or a plan of action did not comply with the Nursing Council of New Zealand's Competencies 2.3 and 2.6 for a registered nurse's scope of practice, and was therefore a breach of Right 4(2) of the Code.

Opinion: Breach — Dr C

Introduction

216. Dr C saw Dr A on 18 March 2009, and he was able to confirm his provisional diagnosis of spinal stenosis when he viewed the result of the MRI scan that had been performed on 16 March. Dr C recommended a surgical procedure to correct the condition — posterior lumbar decompression and instrumental posterior lateral fusion — and advised Dr A about the risks and benefits of the surgery.

217. Dr A agreed to this approach, and the surgery was planned for 27 May 2009 at the private hospital. Dr C wrote to Dr A's GP detailing his assessment, discussion and recommendation, noting that Dr A understood the risks associated with this surgical procedure.

Surgery

218. HDC's independent expert, orthopaedic surgeon Dr Bruce Hodgson, advised that Dr C's surgical approach for Dr A on 27 May 2009, of a lumbar decompression of L3/4 and L4/5 along with a fusion from L3 to L5 with an interbody fusion at L4/5, complied with appropriate professional standards.

219. However, Dr Hodgson noted a discrepancy in the information that Dr C provided about this surgery. In one report, Dr C indicated that the surgery was "routine", but he later advised HDC that there was a "significant amount of oozing" during surgery, which required Dr A to be transfused in the immediate postoperative period. In his brief handwritten note on the "Operation/Procedure Details" form Dr C recorded that he encountered a "very scarred dura", while his dictated operation note makes no reference to the scarred dura. Dr Hodgson advised that a scarred dura usually indicates a degree of difficulty in the dissection of the spinal dural sac or nerve roots, rather than a routine procedure.

220. Dr Hodgson noted that Dr C's observations during the surgery of scarring of the dura and significant oozing is possibly the reason that Dr A's blood loss during surgery

was 1200mls (which was noted by anaesthetist Dr G in his anaesthetic record). However, Dr Hodgson advised that the operation technique that Dr C detailed in his handwritten record of Dr A's surgery appeared satisfactory.

Postoperative care

221. Dr A was returned to the general surgical ward at 3pm. RN Ms D was assigned the postoperative care of Dr A for the afternoon, and she monitored Dr A's neurovascular status and vital recordings. At 7pm, RN Ms D was concerned about Dr A's blood loss and contacted Dr C to advise him about her observations.

222. Between 8pm and 8.45pm, Dr C and Dr G reviewed Dr A's progress, noting that she was haemodynamically stable. Dr C found that Dr A's neurological status was satisfactory. She exhibited normal motor power, but had some numbness in her right foot. Dr C was unconcerned about this, advising HDC that this numbness was to be expected given the manipulation of the nerves in the lower lumbar spine during the surgery and the placement of the interbody cage into the disc at L4/5. Dr C stated that he assessed Dr A's perineal sensation at this time and found it was normal. However, he did not record his assessment and findings in Dr A's clinical records. In her response to HDC, RN Ms E made reference to this lack of documentation and said that, if done, this may have highlighted concern about the possibility of neurological compromise.

223. In response to the provisional opinion, Dr C submitted that both his handwritten notes and the dictated operation record contain his standard postoperative instructions, which include neurovascular checks. He said that he has checked a large number of notes made by other surgeons and seen nothing that diverged markedly from what he recorded for Dr A. Dr C stated that operation notes of this quality are "entirely consistent with the usual operative practice of almost every other practising surgeon".

Postoperative review — 28 May

224. When Dr C saw Dr A at 7.15am on 28 May, RN Ms E attempted to report Dr A's condition to him and was twice told to "be quiet". However, Dr C stated in his reporting letter of 28 May 2009 to Dr J: "At approximately midnight [Dr A] had deterioration of her neurological status with loss of power in the L5 and the S1 distributions bilaterally. This was not notified to me and on my ward round at 8am the following morning [Dr G] and I noticed this." However, Dr B, Dr G, RN Ms E and RN Ms F all believe that the time that Dr C reviewed Dr A on the morning of 28 May was about 7.15am.

225. Dr C stated to HDC that he found, "to [his] dismay", that Dr A had complete and dense motor loss in both legs at L4, L5 and S1. He examined Dr A and found that she had numbness in her perineum and also complete loss of sensation of the catheter tube. Dr C stated, "From this neurological examination, I felt clinically that she exhibited cauda equina syndrome." He said that he arranged for Dr A to have an MRI scan to confirm this, and planned to return her to theatre.

Timing of surgery

226. Dr C advised HDC that when he became aware of the density of Dr A's neurological deficit on the morning of 28 May, he weighed his options for the quickest return to theatre. He said he considered the urgency of the situation and his options for where this surgery would best be performed, as the interval between the onset of Dr A's symptoms (which he asserted was 10pm on 27 May)[22] and the decision to proceed to surgery at 9.30am on 28 May was approximately 12 hours. Dr C said that the evidence shows that surgery in these circumstances needs to be done within 12 to 24 hours of diagnosis.

227. However, Dr C also stated, "Irrespective of when one considers the deterioration commenced, the critical 'window of opportunity' of 6 hours [had] well and truly passed when I saw [Dr A] at 0720" and as a result Dr A was "deprived of the opportunity of timely medical intervention". Dr C considers that as the window of opportunity for a good outcome of six hours had passed, the timing of the surgery had no bearing on the outcome.

228. Dr Hodgson advised that cauda equina syndrome secondary to compressive haematoma is very unusual, but is one of the most important postoperative emergencies in spinal surgery. Dr Hodgson advised that because of its low frequency, there have been no quality studies conducted to identify the best timing for surgery to remove the compressive haematoma. While the literature gives conflicting views about the timing of a return to theatre, it is generally accepted that surgery to decompress the compressed nerve roots should be carried out as soon as possible. I accept this advice.

Public versus private care

229. Dr C stated that he considered sending Dr A to the public hospital to expedite surgery, but felt that this would not get her to theatre any earlier, as it would take at least two to four hours before surgery could be performed in the public system. Dr C decided that it would be in Dr A's best interests if he continued to care for her, because he was her primary treating surgeon and it was more likely that by returning her to the private hospital's theatre he would have her in theatre at an earlier time.

230. Dr C's explanation of why he did not refer Dr A to the public hospital is concerning. His rationale is that as Dr A's symptoms began at 10pm it was already past the optimum six hours post-onset of symptoms, and that it would be more expedient to operate at the private hospital. Dr C advised HDC that "[t]he time of onset of symptoms at 22.00hrs on 27.5.2009, to the decision made to do surgery based on knowledge of the MRI scan findings, was approximately 12 hours".

231. However, there is no evidence that Dr A's symptoms began at 10pm, as Dr C states. In fact, the records show that at 11pm, although Dr A had some numbness in her right leg, her observations were satisfactory. Her deterioration was first noted at midnight.

[22] No records were made at 10pm. The records at 21.30 show that movement was "n" (normal) and sensation was unchanged, and there was "some numbness".

Decisions regarding return to theatre

232. Dr C said that he was available to operate on Dr A at any time in the morning or afternoon of 28 May.

233. Dr C provided various information about his interactions with the private hospital regarding returning to theatre, as set out in paragraphs 90–94 above.

234. Dr C said he does not believe that it was inappropriate for him to proceed to Hospital 2 to wait for a theatre to become available at the private hospital, because of the close proximity of the two hospitals. He did not explain how he could be immediately available if he was operating on another patient at another hospital.

235. I consider it is more likely than not that if Dr C had requested a theatre urgently at 7.30am, one would have been made available. The evidence provided points to Dr C booking Dr A's surgery at 9.30am, after he was given the results of the MRI scan while he was at Hospital 2. This is supported by Dr C's statement in his response to my provisional opinion that he was not ready to return to theatre at 7.30am as he had arranged an urgent MRI scan and the results were not available until later in the morning.

236. Conflicting information about the availability of a theatre for Dr A on 28 May 2009, and the arrangements Dr C made to return Dr A for surgery, has been provided by the private hospital's OR in paragraphs 95–102 above.

237. The private hospital's theatre list for 28 May records that Theatre 3 was in use from 8.30am and became free at 11am. However, Dr C denies that he was offered a theatre at 11am but also said that even if he had known Theatre 3 was available at 11am, he would have preferred not to use it. He said that this theatre was not suitable for Dr A's surgery. However, he advised that this was the theatre he used later in the afternoon.

238. The Chief Operating Officer advised HDC that it is his experience that if a patient requires urgent attention, the surgeon will demand that his or her request is met in the timeframe he or she considers suitable. The Chief Operating Officer said that if the case is "very urgent" this can necessitate interrupting the first list that becomes available. In his view, Dr C had plenty of opportunity to interrupt a theatre list with trained orthopaedic staff if an urgent return to theatre request had been made. Dr C stated that his view was that the responsibility for such actions lay with the private hospital rather than with him.

239. I am unable to resolve the issue as to whether Dr C knew that a theatre was available for him to operate on Dr A at 11am. However, I am satisfied that Theatre 3 was free from 11am on that day, and that there were staff available (albeit not orthopaedic trained) who could have assisted at that time. I can find no reason why RN Ms H would withhold this information from Dr C regardless of the level of urgency in this case. Additionally, I am satisfied that Dr C should have been aware that the OR staff were obliged to make a theatre available for urgent returns. Dr C is an experienced surgeon and had been operating at the private hospital since June 2006. He should

have known that if he said he had an emergency requiring a theatre, his request would have been actioned as a priority.

240. Dr Hodgson said that he finds surprising Dr C's statement that his priority was to return Dr A to theatre as soon as possible. Dr Hodgson said that valuable time was lost in returning Dr A to theatre. Dr A's sensory loss had first been identified at 3pm on 27 May, and her neurological condition deteriorated significantly around midnight. Dr Hodgson stated that it was "an oversight" on Dr C's part to proceed to Hospital 2 to carry out an operating list of elective surgical patients, while waiting for an operating theatre at the private hospital to be made available.

241. Dr Hodgson advised that the literature indicates that there is no difference in the outcome for patients decompressed less than six hours after the onset of cauda equina syndrome, as compared with those decompressed up to 24 hours after the onset of the syndrome. He noted, however, that these reviews are retrospective, as the condition had already occurred and the damage been done. Dr Hodgson stated:

> "The problem is we simply do not know. Each patient is an individual and I believe an appropriate standard of care is to return the patient to theatre at the earliest available opportunity in order to give them the best chance of recovery.
>
> …
>
> I do not believe [Dr C] provided an appropriate standard of care in managing [Dr A's] post operative care. I believe this is a moderate departure from an appropriate standard of care."

242. However, Dr C does not believe that the delay in his return to the private hospital and starting Dr A's surgery at 3.28pm (one and a half hours later than he had originally planned owing to a complication arising with one of his Hospital 2 patients) would have made a difference to the outcome. Dr C stated that the time of the onset of Dr A's symptoms at 10pm to the decision to operate was approximately 12 hours. He said that most of the literature suggests that "any time after six hours from onset, the difference in outcome up to 48 hours is negligible". Despite Dr C's view that the symptoms began at 10pm, the records indicate that the first change was noted at midnight.

243. In response to the provisional opinion, Dr C stated that while the literature referred to by Dr Hodgson does suggest a quick return to theatre may make some difference, this is not guaranteed. He said that it is important to note that this literature does not pertain to alleged postoperative cauda equina syndrome, and the reference to early surgery potentially making a difference is only if there is a diagnosis of haematoma. Dr C submitted that when he reviewed the MRI findings with an experienced musculoskeletal radiologist and an orthopaedic spinal surgeon colleague, the agreed opinion was that there was no direct evidence of a haematoma compressing the cauda equina. Dr C stated:

> "Therefore, in [Dr A's] case, once the 6 hour period had passed, and with the long-standing density of her neurological findings (which plays a part in the

prognosis) when seen at 0720 hours, it would have made little or no difference to [Dr A's] outcome whether the exploratory surgery of her wound occurred at 11am, 2pm or later that day."

244. I accept that there are conflicting views about the optimum timing of a return to theatre for decompression of a constricting haematoma, and that there is no conclusive evidence that operating between 6 hours and 48 hours from the onset of symptoms will improve the outcome. However, I note that Dr Hodgson's view, which he advises is also the view of a number of other specialists examining this syndrome, is that the appropriate management is to return the patient to surgery as soon as possible. This is supported by the literature provided to me by Dr C.

245. Dr C should have provided theatre staff with an adequate explanation and understanding that Dr A's situation was an emergency. Valuable time was lost because he did not effectively communicate this information. In the opinion of my expert, Dr C's postoperative care of Dr A was a moderate departure from the accepted standard.

246. In my opinion, Dr C did not provide Dr A with services with reasonable care and skill and therefore breached Right 4(1) of the Code.

Documentation

247. The recording of clinical findings and the plan for future treatment is an important aspect of surgical services, as this information enables staff to provide appropriate care and know when to consult the surgeon should the patient deteriorate.

248. Dr C did not document his postoperative assessments of Dr A. He stated that he carried out a full examination of Dr A on the evening of 27 May, including an assessment of her perineal sensation, but there is no record of this. His explanation for not recording his assessment was that he did not see the necessity, as Dr G had recorded his own assessment of Dr A and his plan to monitor her status.

249. Dr Hodgson stated that he was surprised that Dr C did not write any of his clinical findings or a management plan. Dr Hodgson said that it was important for Dr C to have documented his findings in order to have a reference to detect any further neurological compromise.

250. Dr C noted Dr Hodgson's comments regarding Dr A's sensory loss. Dr C stated that it is important to record that "this level of sensory loss was by no means a widespread neurological catastrophe like a cauda equina; it was purely a little bit of numbness in a nerve root distribution and does not reflect the serious event that unfolded subsequently". He said that his comment that some numbness in Dr A's right leg would not be unusual could "certainly not be extrapolated to a situation where no movement or sensation could be felt in either leg or ankle".

251. Dr C stated that the private hospital's Spinal Surgery Clinical Care Pathway, which has been in use since he started operating at the hospital, is a standard document that dictates exactly what is to be done and how a patient is to be cared for. Dr C stated, "There is absolutely no ambiguity." The section "Surgeon Preferences Spinal Fusion"

outlines each surgeon's general postoperative requirements. Dr C stated that only four of the ten surgeons operating in this field at the private hospital routinely require neurovascular checks as a matter of routine postoperative observations. He commented that nursing staff are "fully aware" of the clinical care pathway, and that it is a "guide only", and noted that the care pathway specifies that they must always review each patient as an individual and consider medical intervention when appropriate.

252. Dr C said that he had instructed the nursing staff to notify him by phone if there was any further deterioration in Dr A's condition. However, he did not write anything to that effect, and it would have been difficult for nursing staff to know what the further neurological deterioration would be, without knowing Dr A's condition at the time Dr C carried out his examination.

253. As stated by Dr Hodgson, "It is very unfortunate that [Dr C] did not write his findings down as I believe RN [Ms E] may well have seen this and taken note." I agree, as had the nurses been aware that Dr C was sufficiently concerned to have checked Dr A's perineal sensation, this would have been a significant alert to the possibility of a neurological complication.

254. It is understandable that Dr C would have been concerned on the morning of 28 May when he became aware of the seriousness of Dr A's condition, and that this had not been recognised and reported earlier by the nurse responsible for Dr A's care. However, he did not document his diagnosis of cauda equina syndrome, and apart from Dr G's brief note about Dr A's lack of plantar flexion, there is no record of the extent of her neurological compromise or Dr C's neurological findings.

255. Dr C advised HDC that he recorded his 28 May examination findings and his plan and expectations on a piece of the private hospital paper with Dr A's identification sticker attached, and left it in Dr A's notes in the nurses' station. There is no record of this piece of paper being located. In contrast, Dr C's previous explanation for not recording his 28 May assessment was that he was "so horrified" by the density of Dr A's neurological deficit and focused on what needed to be done, and that he knew Dr G had made an entry in the notes.

256. It is apparent that the nursing staff were not aware of Dr C's plan and expectations for Dr A's care, as it was not until RN Ms L telephoned Dr G at Hospital 2 at 11.30am to report Dr A's urinary output, that the nursing staff were asked to prepare Dr A for surgery.

257. Records are an essential tool for patient management, for communicating with other doctors and health care professionals, and for ensuring continuity of care. Adequate notes allow for a more reliable comparison of findings than simple memory of events.

258. The Medical Council of New Zealand advises medical practitioners that they have an ethical and professional duty to maintain adequate records as part of good quality care. This should include relevant clinical findings and the decisions made. Dr C's failure to adequately record his clinical findings contributed to the poor care in this case. Keeping adequate records as a tool for management, and for communicating

with other doctors and health professionals is fundamental to the provision of good care.

259. Dr Hodgson advised that this was a moderate departure from the expected standard of care. I consider that Dr C's record-keeping did not meet professional standards. In my opinion, in this respect, he breached Right 4(2) of the Code.

Communication

260. I have concerns about the adequacy of Dr C's communication in relation to these events. There were a number of areas where there was miscommunication between Dr C and the staff. The nurses assigned Dr A's care on the afternoon of 27 May and the night of 27/28 May were unaware that Dr C had checked Dr A's perineal sensation, and were given no further instructions about monitoring her neurovascular status. The OR was unaware that Dr A's return to theatre was a matter of urgency, and the ward charge nurse stated that she was not advised about the result of Dr A's MRI scan. Also, the nurse assigned to Dr A's care on the morning of 28 May did not know about the theatre booking until she telephoned Dr G to advise him about Dr A's urinary output.

261. Dr Hodgson noted that there were a number of variances in communication with Dr C reported by the staff involved in Dr A's care. Dr Hodgson stated that the disparity in what was said or communicated, taken singly, was not important, but when the disparities were viewed together and in context, they indicate a failure by Dr C to communicate adequately with his team. Dr Hodgson advised that there was a failure of appropriate professional communication, and this contributed to the serious outcome of this case. He said:

> "Patients such as [Dr A] have demanding surgical procedures, sometimes difficult post operative recoveries and as such it is important that the whole surgical team is comfortable and each member respects the abilities of the team members. Professional communication between a surgeon and senior nursing staff is paramount to provide an appropriate standard of care that patients such as [Dr A] should expect."

262. I note that RN Ms D commented that Dr C had previously made her feel degraded and laughed at her when she sought information. RN Ms E and RN Ms F reported that Dr C twice told RN Ms E to "be quiet" when she attempted to report Dr A's overnight condition to him. This response was unfortunate. In my view, it is vital to maintain professional standards of communication and respect.

263. Dr C said that he did ask RN Ms E to be quiet, but it was "not meant discourteously or rudely". He says he was half-way through his examination of Dr A, and his communication with her was extremely important and he did not feel it should be interrupted.

264. This Office has previously stated:[23] "DHBs and senior practitioners need to encourage a culture where it is acceptable and even commonplace for questions to be asked, to

[23] 09HDC01146, 28 April 2011.

and from any point in the hierarchy, at any time." In my view, the need for an open culture applies similarly to surgeons operating in private hospitals.

265. Dr Hodgson stated that Dr C would find that his nursing colleagues would become powerful allies when a professionally open and free exchange of views occurs. I consider that a surgeon needs to be able to rely on nursing staff practising at the highest level. Nursing staff need to be confident that the surgeon will provide a high standard of written and oral communication to ensure that the patients are managed appropriately and that the surgeon will respond to queries and concerns in a positive and respectful manner.

266. Dr C's failures to communicate adequately with the team contributed to the serious outcome in this case and impaired his management of Dr A. Quality care demands a culture that allows the multidisciplinary team to provide seamless service. Patient care is at risk of being compromised when communication and relationships are suboptimal.

267. In my opinion, Dr C's failures to communicate appropriately resulted in a lack of continuity in Dr A's care, and Dr C therefore breached Right 4(5) of the Code.

Opinion: No Breach — The private hospital

268. Dr A's orthopaedic postoperative care was provided by the general surgical ward. She was transferred to the ward at 3pm on 27 May 2009, as an "overflow" patient following her posterior lumbar decompression and instrumental posterior lateral fusion.

Communication

269. Poor communication was a key factor that compromised Dr A's care. The areas where there was inadequate communication between Dr C and staff were: the degree of Dr A's neurological deficit at 8.30pm on 27 May 2009 and the understanding of nursing staff of the monitoring required; the discussion about the availability of a theatre on the morning of 28 May; and the instructions given to nursing staff about ongoing management of Dr A while waiting for an available theatre.

270. In the provisional opinion, I considered whether the OR staff should have proactively sought information from Dr C on the urgency of Dr A's return to theatre and pointed out to him that if the matter was urgent then it could be prioritised ahead of scheduled elective surgery. I have been presented with further information relating to these issues. The private hospital stated that Dr C was offered a theatre at 11.00am, which he declined. The private hospital submitted that as Dr C did not take the first time space available it was reasonable for the staff member to assume that he did not view the surgery as urgent. However, Dr C denies that he was offered a theatre at 11am. RN Ms I stated that she had a theatre and staff waiting from just before lunchtime. In addition, the private hospital's associate clinical services manager, Ms M, provided a

statement that she spoke to Dr C at around 10.00am and he told her that he was happy with the 2.00pm timeslot. Dr C denies that the conversation included this discussion.

271. The private hospital submitted that it was Dr C's responsibility to ensure that he had a theatre provided when necessary and, if not, to have transferred his patient to the public hospital. Dr C submitted that it was the private hospital's responsibility to make a theatre available.

272. In his response to the provisional opinion, Dr C attributes "a degree of miscommunication" on the morning of 28 May being responsible for the delay in returning Dr A to theatre. The information provided by the nursing staff relating to these matters has been consistent, whereas Dr C has provided a number of different accounts for each of these situations.

273. Communication, like clinical records, is an essential tool for patient management and for ensuring continuity of care. I accept that the actions of the private hospital staff were not the cause of the suboptimal communication about the degree of Dr A's neurological deficit at 8.30pm on 27 May 2009 and the monitoring required, the availability of a theatre on the morning of 28 May, and the instructions given to nursing staff about ongoing management of Dr A while waiting for an available theatre.

Documentation

274. Independent nursing expert Megan Polglase advised that, in Dr A's case, the avenues available to ensure that complications were adequately managed were not followed. The private hospital has Clinical Care Pathways to instruct nurses on the basic care of patients following spinal surgery. The Care of Post-Operative Orthopaedic Procedures clearly outlines the assessments and interventions for postoperative patients. The private hospital also has an Escalation of Care Policy, which provides guidelines for staff to consult when there is concern about a patient's status.

275. Ms Polglase advised that the documentation relating to the frequency of neurovascular observations required following spinal surgery should be reviewed. She noted that Dr C's operation note, while not specifying the frequency of the required postoperative observations, clearly stated that he expected routine neurovascular monitoring. Ms Polglase stated that the "Haemodynamic and Cardiovascular System" section of the "Day of Operation" form (in the private hospital's Discectomy, Decompression, Microdiscectomy clinical care pathway, which was updated on 17 June 2009) specifies that the patient's vital recordings (pulse, blood pressure and respiration rate) are to be monitored half hourly for four hours and then hourly for two hours, then four hourly if stable, whereas the "Central Nervous System" section of the form requires observation of the patient's pain levels, but does not specify the frequency of the neurovascular recordings. Ms Polglase noted that the Care of Post-Operative Orthopaedic Procedures policy states that the neurovascular assessment should be done at least half hourly, and questioned whether the differing policies were adequate to ensure that emergency postoperative complications from spinal surgery were adequately managed.

276. Dr A's neurovascular recordings were taken half hourly for the first four hours then, apart from a gap between 9.30pm and 12.00, they were taken two hourly.

277. The private hospital advised HDC that when Ms Polglase identified an apparent discrepancy between the frequency of neurovascular recordings in the Discectomy, Decompression, Microdiscectomy clinical care pathway and the Care of Post-Operative Orthopaedic Procedures policy, she failed to recognise that the two documents related to different settings. The Care of Post-Operative Orthopaedic Procedures policy applies in the immediate postoperative period in the Recovery setting. The Discectomy, Decompression, Microdiscectomy clinical care pathway applies to the ward setting after the patient has transferred from the theatre suite.

278. I accept the submissions from the private hospital that the documentation in use would not cause confusion about the frequency and type of patient observation required, and that the extent of the observations should be ascertained in part in response to the nurse's clinical judgement and the patient's needs. However, it should be noted that the frequency of monitoring of patient observations should be guided by both the surgeon's instructions and the protocols in place.

Preoperative neurological symptoms

279. Dr Hodgson also stated that the private hospital did not have adequate systems in place to ensure that the significance of Dr A's postoperative complication could be identified. In particular, he was concerned that the pre-admission form provided by the private hospital did not have any reference to preoperative neurological symptoms or signs. Dr Hodgson noted that the private hospital has, since these events, addressed the system deficiencies identified by its SEI, such as registered nurse IPS orientation and competency checklists. There has also been a change to the OR documentation relating to urgent return to theatre.

280. The private hospital stated that its patient assessment record does have a section labelled "neuro/sensory". This section, which records the patient's orientation and awareness, was completed on 27 May by RN Ms K, who noted that Dr A "sometimes gets numbness on both legs". However, this was basic information. In my view, it would be best practice to require a detailed description of the neurological status of the patient's limbs preoperatively, which would provide a base-line for staff assessing the patient in the perioperative and postoperative periods. A suitably designed form would facilitate the collection of this information.

281. Dr C provided scant preoperative clinical information relating to Dr A's perioperative[24] neurological status; however, I am satisfied that the private hospital had adequate systems in place to enable staff to adequately monitor postoperative spinal patients and recognise changes in neurological symptoms.

Training

282. Ms Polglase expressed her concern about how nurses are informed and updated regarding the systems in place at the private hospital. She was concerned that night

[24]Perioperative generally refers to the three phases of surgery: preoperative, intraoperative, and postoperative.

nurses missed educational opportunities. In addition, she noted that the EWSS had not been used for Dr A for the two critical shifts on 27 and 28 May 2009, and advised that all patients should have their EWSS assessed when their observations are taken. Ms Polglase stated: "There is a lack of understanding of the importance of early intervention and documentation."

283. In response to the provisional opinion, the private hospital advised that it disseminates new information to staff via newsletters, noticeboards, ward/area meetings, and education sessions, and that these are common ways of disseminating information in the health care sector where it is usual for all staff to attend meetings. The private hospital advised that it also uses an Intranet, which has as its homepage a section of updates and changes.

Conclusion

284. The private hospital had processes in place to provide for a return to theatre should complications arise following surgery. Although there were failures in communication between Dr C and the private hospital staff, I accept that the suboptimal communication was not caused by the actions of the private hospital staff.

285. I accept that the private hospital had adequate systems in place for assessing and monitoring a patient's neurological status and that having two documents, the Discectomy, Decompression, Microdiscectomy clinical care pathway and the Care of Post-Operative Orthopaedic Procedures policy did not impact on the care provided to Dr A.

286. In addition, I am satisfied that there were adequate processes in place to ensure that the nursing staff were informed and updated about the private hospital's systems.

287. Overall, in my opinion, the private hospital generally had sufficient systems in place to ensure that Dr A was provided with services of an appropriate standard, and therefore did not breach the Code.

Recommendations

288. I recommend that the private hospital:

- consider introducing a suitably designed form to record a detailed description of the neurological status of the patient's limbs preoperatively, which would provide a base-line for staff assessing the patient in the perioperative and postoperative periods, and advise HDC by **27 January 2013** of the actions taken regarding this issue.

289. In my provisional opinion, I proposed making the following recommendations in relation to RN Ms E:

1. RN Ms E apologise in writing to Dr A for her breaches of the Code;

2. RN Ms E obtain an independent review of her practice.

290. In response to my provisional opinion, RN Ms E apologised to Dr A.

291. I consider that recommendation 2 remains to be completed and, accordingly, I recommend that RN Ms E:

- obtain an independent review of her practice in light of this report, and advise HDC by **27 January 2013** what actions she has taken in response to the issues highlighted in the report.

292. In my provisional opinion, I proposed making the following recommendations in relation to Dr C:

1. Dr C apologise in writing to Dr A for his breaches of the Code;
2. Dr C reorganise his medical records in light of this report and advise HDC what steps he has taken to improve his medical records practice;
3. Dr C undertake a communications skills course and advise HDC when he has completed the course.

293. In response to my provisional opinion, Dr C advised me that:

1. in relation to recommendation 1, he has apologised to Dr A;
2. in relation to recommendation 2, he has requested that a colleague conduct an independent review of his notes.

294. I consider that recommendations 2 and 3 remain to be completed and, accordingly, I recommend that Dr C:

- arrange a review of his clinical documentation by the Medical Council of New Zealand and provide evidence of the outcome of this review to HDC by **30 November 2012**; and
- undertake a communication skills course, recommended by the Medical Council, which focuses on the issues raised in this report, by **27 July 2013**, and provide evidence to HDC that he has completed the course.

Follow-up actions

- A copy of this report with details identifying the parties removed, except for the names of the experts who advised on this case, will be sent to the Medical Council of New Zealand and the Nursing Council of New Zealand. The Medical Council will be advised of Dr C's name, and the Nursing Council will be notified of the names of RN Ms E and RN Ms D.

- A copy of this report with details identifying the parties removed, except for the names of the experts who advised on this case, will be sent to the Royal Australasian College of Surgeons, who will be advised of Dr C's name.
- A copy of this report with details identifying the parties removed, except for the names of the experts who advised on this case, will be sent to ACC, the District Health Board, and the New Zealand Private Surgical Hospitals Association and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A — Independent expert surgical advice

The following expert advice was obtained from orthopaedic surgeon Dr Bruce Hodgson.

"Qualifications:
I am a vocationally registered Orthopaedic Surgeon with sub speciality training in spinal treatment and surgery (adult and paediatric spinal surgery).

I qualified as an Orthopaedic Surgeon in 1987 and underwent formal fellowship training in spinal surgery at University of Witzwatersrand, Johannesburg, South Africa in 1989.

I commenced Consultant Orthopaedic Surgery Practice at Dunedin Public Hospital in March 1990 with a sub specialty interest in Spinal Surgery.

Referral Instructions
The referral instructions from the Commissioner are provided:

Purpose of Report
To provide independent expert advice about whether [Dr C] and [the private hospital] provided an appropriate standard of care to [Dr A].

Background
On the morning of 27 May 2009, [Dr A] (69 years) had surgery at [the private hospital] to decompress a two level lumbar spinal stenosis (L3/4 and L4/5). Surgery was performed by orthopaedic surgeon [Dr C]. At recovery [Dr A] was moving all limbs. At 8pm [Dr C] and anaesthetist [Dr G] reviewed [Dr A] on the ward, noting that she had had heavy bleeding from the wound, and that she had some numbness in the dorsal aspect of her right foot. [Dr C] believed this was due to stretching of the L5 nerve from the cage used in the surgery.

[Dr A's] circulatory observations were monitored half hourly until 9.30pm, and her vital signs half hourly until 10pm and then hourly until 2pm the following day. The records show that [Dr A] had heavy bleeding from the wound site during the afternoon and evening, and some right sided numbness. (It is assumed that it was her right foot that was numb, given [Dr C's] note, but the nurses did not specify the site.) Although [Dr A's] vital signs were checked at 10pm and 11pm, there were no circulatory observations performed between 9.30pm and midnight. The two hourly circulatory observations from midnight to 6am noted that [Dr A] had no sensation or movement in her ankles and feet. No action was taken.

Two registered nurses had been responsible for [Dr A's] post operative care. RN [Ms D] cared for [Dr A] during the afternoon of 27 May until change of shift on 11.15pm, when RN [Ms E] took over the care of [Dr A] until 7am on 28 May.

At 7.20am [Dr C] and [Dr G] reviewed [Dr A], noting the neurological abnormality. An MRI scan was organised and performed at 9am. The MRI indicated a haematoma

compressing the nerve branch. [Dr C] advised [Dr A] that she would need further surgery to remove the haematoma.

[Dr C] was offered two theatre times, 11am in general theatre, and 2pm with an orthopaedic team. [Dr C] chose the 2pm option, however [Dr A's] surgery did not commence until 3.28pm because [Dr C] was delayed operating at another hospital. Following the surgery [Dr A] was transferred to [the public] Hospital, intubated, as she had severe oedema of her airways, which was thought to be related to systemic inflammatory response syndrome.

[Dr A] had developed cauda equina and [loss of] bowel and bladder function. On 12 June, she was transferred to [a] Spinal Unit, where she is currently receiving intensive physiotherapy to mobilise.

Supporting Information

- Complaint to the Commissioner by [Dr B], received HDC 16 February 2010, marked with an 'A'. (Pages 1 to 51)
- Response from [Dr C], received HDC 27Apr11 2010, marked with a 'B'. (Pages 52 to 81)
- Response from RN [Ms E], received HDC 18 May 2010, marked with a 'C'. (Pages 82 to 93)
- Response from anaesthetist [Dr G], dated 25 May 2010, marked with a 'D'. (Pages 94 to 110)
- Response from RN [Ms F], received HDC 16 June 2010, marked with an 'F'. (Pages 11 and 112)
- Response from [the private hospital], received 7 May 2010, marked with a 'G'. (Pages 113 to 198)

Expert Advice Required

To advise the Commissioner on whether, in your opinion, [Dr C] and [the private hospital] provided [Dr A] with an appropriate standard of care, and in addition answer the following questions:

[Dr C]

1. *What is the risk of haemorrhage during spinal decompression and fusion surgery?*
2. *Did [Dr C's] surgical approach comply with professional standards? If not, please explain.*
3. *Was [Dr C's] management plan for [Dr A] at 8.30am on 28 May 2009 appropriate? Please comment.*
4. *Were the actions [Dr C] took on 28 May, when the extent of [Dr A's] post operative complication was identified, appropriate? Please discuss.*
5. *Please discuss the '12 hour window' in treating cauda equina syndrome.*
6. *Did [Dr C's] documentation comply with professional standards?*

If, in answering any of the above questions, you believe that [Dr C] did not provide an appropriate standard of care, please indicate the severity of his departure from that standard.

[The private hospital]

1. *Were the systems in place at [the private hospital] in May 2009 adequate to ensure that emergency postoperative complications from spinal surgery were adequately managed? Please comment.*

If, in answering any of the above questions, you believe that [the private hospital] did not provide an appropriate standard of care, please indicate the severity of its departure from that standard.

To assist you on this last point, I note that some experts approach the question by considering whether the providers' peers would view the conduct with mild, moderate, or severe disapproval.

Are there any aspects of the care provided by [Dr C] and [the private hospital] that you consider warrant additional comment?

Information Reviewed
I have reviewed the supporting information supplied by the HDC.

I have reviewed the X-ray reports and disc provided.

In order to evaluate the care provided by Anaesthetist [Dr G] I have sought advice from [a Consultant Anaesthetist].

I have made reference to the relevant literature related to post operative lumbar spinal haematoma causing secondary cauda equina compression syndrome.

Chronological Summary
[Dr A] (date of birth [date] 1939) was referred to Orthopaedic Spinal Surgeon [Dr C] by her general practitioner [Dr J].

There is a history of her complaint of low back pain and leg pain as outlined in [Dr C's] letter of 13 March 2002.

13.03.09
[Dr C] noted she had pain in her back of some 10 years with some leg pain that changes. He noted she could walk seven golf holes then had to stop. He noted she described pins and needles and numbness and pain at night time. It was worse rotating in bed. She had difficulty walking down a hill.

At examination he reported no increase in tone or clonus, negative straight leg raising bilaterally, no evidence of an upper motor neurone lesion, reflexes equivocal, power was satisfactory and she could heel and toe walk nicely, she had a good range of movement but had some slight restriction on extension.

No written documentation of sensory changes was noted.

[Dr C] felt [Dr A] may have a problem with spinal stenosis and arranged an MRI scan of the lumbar spine.

16.03.09
The MRI scan was carried out on 16 March 2009 and the report by [the Radiologist] indicated severe central canal stenosis at L4/5 level due to a degenerative spondylolisthesis and mild bulging of the disc. There is narrowing of the right foramen with disc abutting but not definitely compressing the right L4 nerve root. There is mild to moderate central canal stenosis at the L3/4 level due to a combination of disc bulging and a degenerative spondylolisthesis. There is moderate narrowing of the right foramen but no nerve root compression. The lowest lumbar vertebra is sacralised.

18.03.09
[Dr A] was reviewed by [Dr C] on 18 March 2009. His letter to [Dr J] of the same date stated he had reviewed the MRI scan that showed severe stenosis at the L4/5 level and also the L3/4 level. He felt it was best treated with surgery, a posterior lumbar decompression and instrumented posterolateral fusion.

He further stated 'I have been through this carefully with her husband and her today and I have explained to her the risks and benefits. The risks include but are not limited to infection, damage to the nerve root, damage to the dura and she is understanding of that'.

[Dr C] made arrangements for her surgery to be carried out towards the end of May.

[The private hospital] Admission
[Dr A] was admitted to [the private hospital] on 27 May 2009.

27.05.09
The Pre Admission form headed Discectomy and Decompression/Microdiscectomy had been completed by [Ms K] RN.

The chart headed Preparation, Medications, Safety is outlined with the integrated progress notes. No written documentation is noted here.

On the page titled 'Clinical Care Pathway Template Version 1 June 2008, review date June 2009' there is no reference on this pre-op admission of clinical history notes and in particular the pre-operation neurovascular status on admission.

I have presumed [Dr C's] preoperative type written notes, follow up appointments and MRI scan results are part of the written admission documentation.

The anaesthetic commenced at 0954hrs and finished at 1220hrs. The anaesthetic notes are outlined. In particular [Dr G's] patient assessment records indicate the discussion with the patient regarding the general anaesthetic, risks and questions. Drug questions were answered in detail. Questions regarding awareness while paralysed were

answered in detail. Questions regarding high dependency unit postoperatively were answered and noted that this was not normally but if needed.

1220hrs blood loss from surgery noted to be 1200 mls.

[Dr C's] hand written note indicates L3/4, L4/5 decompression. L3/L5 fusion with L4/5 TLIF. Note 'very scarred dura'.

His post operative orders:
(1) Neurovascular checks
(2) HB check as per [Dr G]
(3) Fluid balance
(4) Analgesia as per chart
(5) Monitor urine output
(6) Eat as per orders

[Dr C's] dictated operation note 27 May 2009, L3/4, L4/5 microdiscectomy, decompression and L3 to L5 instrumented 360 fusion with L4/5 TLIF.

Implants Legacy Crescent.

Biologics Infuse, Mastergraft.

Operative Procedure:

He notes the dissection was carried out over the lower mobile segment which was identified and tight stenosis was here. Screws were placed in the lowest two vertebra and also the superior vertebra. These were checked with X-ray intensification. A wide decompression and TLIF was then performed at the L4/5 level. There was a good decompression. He notes there was an old annulus projecting forward into the posterior aspect of the thecal sac but with good clearance anteriorly the thecal sac was nicely decompressed. A wide decompression was carried out at the superior level. The wound was then thoroughly washed out and haemostasis achieved and the wound closed in layers.

Postoperative Instructions:

(1) Analgesia
(2) Neurovascular checks
(3) Monitor fluid balance
(4) Mobilise when comfortable
(5) Drain out on instructions if drain used
(6) Can eat and drink clear fluids and light diet when passing flatus and bowel sounds active
(7) Catheter out on instruction
(8) Follow up appointment at Orthopaedic outpatients at [Dr C's] rooms 4 weeks from date of surgery
(9) Wound to be kept dry and covered with sterile waterproof dressing for first 7–10 days

(10) No sitting for more than 30 minutes for the first six weeks.
(11) No heavy lifting for the first six weeks.

There is no reference to 'very scarred dura'. No note was made as to which side the TLIF was carried out on. This is referred to later in his report (re right side).

1235hrs
The patient arrives in recovery 1235hrs and was noted to be conscious at 1243hrs.

1405hrs
1405hrs noted good power and sensitivity in both legs.

1500hrs
The patient was returned to the ward at 1500hrs and noted to be drowsy. The page documentation indicated ongoing problems related to cardiovascular stability, loss of blood in drain, lowered urine output and vomiting.

At 1500hrs on arrival in the ward, the care pathway circulatory observation noted normal movement in the right and left leg but altered sensation and numbness in the right leg though normal in the left leg. Operation site bleeding was noted to be large. Pain noted to be present. Peripheral pulses were present.

1500hrs to 2300hrs
[Dr A] was cared for by RN [Ms D].
RN [Ms D] noted at 1500hrs [Dr A] looked pale with blood pressure low. A new IV line had been inserted by [the clinical nurse educator]. Pain control was offered with PCA.

RN [Ms D] noted her fluid input was monitored and [Dr G] changed the prescription at 1610hrs and prescribed three (3) units of red blood cells.

She stated [Dr A] had had a large amount of IV fluids and noted her puffy face. She discussed this with [Dr G] and [Dr C] at 2000hrs.

She noted that of the drains in place the blood loss over the course of her shift was 1000mls.

She made reference to the 1200mls of blood lost in the operating theatre, this indicated a total blood loss of 2200mls.

She made note that [Dr C] was updated on the condition and indicated he would review the patient at 2000 hrs.

She made note [Dr A] developed nausea and vomited 500mls during her shift.

She noted her general observations remained fairly stable through the shift.

She made particular reference to neurovascular observations noting they remained unchanged and stable each time they were checked which was half hourly for the

majority of the shift. She noted both feet and legs were of normal colour, warm to touch with movements of both feet were normal. She detected nil deficit on each time on either legs apart from some numbness of the right lateral lower leg.

This was confirmed by the hand written post-op care pathway chart.

[Dr C] was informed of this but [Ms D] was told this was not unusual following this type of surgery.

She noted the left leg foot sensation was normal and peripheral pulses were present bilaterally.

The circulatory observations on the chart finished at 2130hrs with no observation between her finishing her shift at 2300hrs and the next note made at midnight by RN [Ms E]. She stated between 2130 and 2200hrs she and RN [Ms E] completed pressure area cares, log rolled. [Ms D] inspected the wound drain sites and went through particulars in detail with [Dr A's] care carefully at the bedside as RN [Ms E] was to take over [Dr A's] care when she finished duty.

[Dr G] reviewed [Dr A] on the ward at 1530hrs noting circulatory status and breathing. He noted she was currently haemodynamically safe, no evidence of pulmonary overload but needed more red blood cells.

He made no record of the neurovascular status of the legs.

A second hand written note by [Dr G] with [Dr C] and Staff Nurse [Ms D] between 2000 and 2045hrs noted the redivac filling, nausea, satisfactory pulse, peripheral pressures. He noted she was stable, euvolemic, safe, nauseous. His plan indicated antiemetics, fluid management, investigations tomorrow, review mane at 7am by [Dr C]/[Dr G]. He made note any concerns call his cell phone anytime. Note indicated 'thanks, well done team' [Dr G].

Hand written note by RN [Ms E]
27/5/2009 to 28/5/2009 2300–0700hrs night report. Noted [Dr A] was stable and comfortable, husband present in the Lazyboy. Patient has feeling only to knees to touch, states nil feeling in either foot to touch at 0215hrs. Note of no movement in the feet 2am. TED's and Flotrons and heel wedges still in situ. Further note at 4am touch felt to each ankle. New note 6am touch ankles, dull feet, nil toes each foot zero movement below ankles. Moderate ooze back.

These findings are outlined on the post-op care pathway by RN [Ms E].

From midnight, 2am, 4am, 6am the post op care pathway noted no movement ankles or feet on right or left, sensation none on right or left.

28.05.09 0715hrs
The patient was reviewed on the ward by [Dr C] and [Dr G] at 0715hrs.

[Dr C] stated in his written report, he attended the routine ward round to review the patient. [Dr G] was there at the time. It was approximately 0720hrs.

He stated 'This time I examined [Dr A]. To my dismay I discovered that she had complete and dense motor loss at L5 and SI and also L4 was involved in both of her legs. She had numbness bilaterally in her limbs, numbness in her perineum and also complete loss of sensation of the catheter tube. From this neurological examination I felt clinically she exhibited a cauda equina syndrome.'

[Dr G] in his letter to the Commissioner stated '[Dr C] and I came to review [Dr A] (by my recall) at around 0715hrs. I documented that [Dr A] was stable in terms of her cardiovascular, respiratory and renal status. [Dr C] examined her and I documented my perception of his findings including reduced plantar flexion bilaterally.'

[Dr G's] hand written note 'reduced plantar flexion of the right and left leg, therefore stat MRI exclude haematoma'

I am unable to identify any other details or note made of neurologic evaluation nor other hand written notes from [Dr C] in the body of the report.

[Dr C] indicates that he contacted radiology immediately and arranged an MRI scan.

The MRI scan was carried out around 0900hrs and [Dr C] was made aware of the results via phone with a discussion with [the Radiologist] at approximately 0930hrs. [Dr C] made note that [the Radiologist] reviewed these images with [the] Senior Musculoskeletal Radiologist working for radiology. He stated the central decompression was noted, trans-pedicle screws were seen at the level and although there was metal artifact their impression was that there was no gross haematoma or no collection seen that was compressing the dura. There was some evidence of slight foraminal stenosis at the lower most level that was persistent from the original MR scan findings.

The radiology report of the same day notes the limited image clarity and assessment of the dural sac was really difficult because of image drop off however no gross haematoma or collection was seen. The comment 'difficult study secondary to image degradation from metallic susceptibility artifacts. No gross haematoma or collection is seen'.

[Dr C] stated in his report he felt that the MRI scan results were not conclusive but he considered it was important to act on the clinical evidence.

He noted in her current situation that she had developed a cauda equina syndrome and that the wound needed exploration and washing out.

[Dr C] stated he contacted [Dr A's] husband [Dr B] at 0930hrs and indicated she had a haematoma which was compressing the spinal nerves and needed evacuation.

He stated the operation was scheduled for 1400hrs.

A return to theatre on 28 May 2009 was delayed due to [Dr C] and [Dr G] being delayed at another hospital. The operation commenced at 1528hrs.

Second Operation: Return to Theatre
[Dr G] noted in his anaesthetic assessment probable difficulty with airway and intubation. He noted difficulty with swelling of her larynx. He noted the epiglottis and vocal cords were oedematous (swollen) but was able to intubate her with a bougie confirming the position with fibrescope. He noted no desaturation (oxygen reduction) during the airway manipulations but indicated he felt it would be very unwise to extubate her until there was review at an Intensive Care Unit.

He discussed this with [the public] Hospital ICU Duty Intensivist who agreed. He noted he would transport her to [the public] Hospital from [the private hospital].

He noted [Dr C] would hand over her care to [Dr N] Orthopaedic Spinal Surgeon at [the public] Hospital.

[Dr C's] hand written note of the second operation headed 'Washout Haematoma'. Very small dural injury repair (2mm), no active bleeding, interrupted closure, large organized clot recovered.

Post operative orders:

(1) Transfer to ICU [the public] Hospital
(2) Neurovascular observation
(3) Discussion with [Dr N] who will accept her care at [the public] Hospital

In his dictated operation note he stated [Dr G] had a large amount of difficulty intubating the patient due to extreme swelling of the airway but finally achieved an airway. He noted no period of anoxia and she was stable at all times. He noted with respect of the surgery itself the old wound was entered and a large organized haematoma was identified. This was then thoroughly washed out. The L5 nerve roots were explored and found to be free. The wound was then closed in layers with two redivacs as per previous operation.

His dictated postoperative instructions were exactly the same as his first operation on 27 May 2009.

His letter to the Commissioner noted at operation she had a significant well organised haematoma which was compressing the thecal sac. This haematoma was carefully drained. A tiny hole was made in the dura by a rough sucker tip but this was repaired with no consequence or loss of more than 3–4mls CSF.

Re-exploration of the original surgery revealed that there was an excellent decompression of all the nerves. As in the first operation a disc bar at the lowest decompressed level was left as it was not causing significant compression.

At the end of the procedure he noted 'I carefully looked for any signs of bleeding and there was no active bleeding that I could have attributed to the development of

haematoma. I would also note that in the original operation two drains were put in place. I again put a drain in and because she was unable to be extubated because of airway problems she was transferred to [the public] Hospital under the care of [Dr N]'.

[Dr A] was admitted to [the public] Hospital on 28 May 2009 at 1821hrs with primary diagnosis of L3, L4, L5 decompression, secondary diagnosis post operative haematoma with cauda equina compression. [Dr A] spent three days in ICU intubated before transferring to the ward.

On the ward she complained of reduced sensation at the perineum and was unaware of the in-dwelling catheter. She had poor power in both feet, particularly L4/5 and S1. A repeat MRI scan was performed which was reported as being difficult to interpret due to metal artefact. No epidural haematoma or drainable collection was identified. A residual recurrent disc at L4/5 with moderate severe central canal narrowing and moderate right foraminal narrowing.

[Dr A] was mobilised with physiotherapy and made steady progress. She required bilateral foot drop splints and was reviewed by the Spinal Unit team and was accepted to [the] Spinal Unit.

She was admitted to [the spinal rehabilitation unit] with diagnosis cauda equina syndrome. She was discharged from the spinal unit on 21 July 2009 with the diagnosis cauda equina syndrome/L3 paraplegia (ASIA C) with loss of bladder bowel function, saddle anaesthesia, on intermittent catheterisation, manual evacuation of bowel. She suffered severe neuropathic pain in her feet and perineum and required ongoing medication for this.

[Dr A] continued to be seen by [Dr N]. [Dr C] stated he had visited [Dr A] both in [the public] Hospital ICU and while in the hospital. He visited her at her home on 19 September 2009. He made note of the last medical report dated 14 October 2009. [Dr N] stated [Dr A] had made an excellent power recovery, but lacked confidence and was using a walker.

[Dr N's] letter of 14 October 2009 noted [Dr A] continues to improve. She now has Grade 4 power of her ankle dorsi flexion and eversion and is also starting to get more powerful. She still has quite a lot of difficulty getting up on her toes but is able to do this when she is in the pool. He noted she had some improved sensation around the perineum but is still self catheterising. He noted her neurodynamics performed by […] appeared to show some significant neuropathic problem with the bladder. He noted she was requiring a walking frame to get around, is becoming more confident and comfortable and can independently mobilise about indoors. He noted the X-rays of her lumbar spine showed no loss of position or sign of problems following her fall, the posterolateral fusion appeared to be maturing satisfactorily.

At that stage he had recommended she continue on her own home based exercise programme. She questioned about reducing Gabapentin (neuropathic medication). [Dr

N] felt it was reasonable as long as her pain levels stayed under control. He arranged to review her in three months.

Summary
[Dr A] suffered from back and leg pains caused by spinal stenosis secondary to a spondylolisthesis (slipped vertebra) at L4/5.

She underwent surgical decompression and both intertransverse L3/5 fusion and an interbody fusion at L4/5 on the right under the care of [Dr C] on 27 May 2009.

The operation was described by [Dr C] as 'routine', this involving decompression of the nerves of the lower lumbar spine from L3 to L5 with placement of an interbody cage at L4/5 (on the right) and pedicle screws at L3, L4, and L5. There was a reasonable amount of oozing with blood loss 1200mls during the operation.

In recovery careful monitoring of her haemodynamic status was required with blood transfusion and fluid replacement.

Of note the neurovascular status of the legs was examined at 1415hrs and was normal (full movement of both feet and legs and normal sensation).

She was not taken to the High Dependency Unit (HDU).

She returned to [the general surgical ward] at 1500hrs where she was cared for by the afternoon nurse RN [Ms D]. In conjunction with all appropriate post operative care RN [Ms D] noted [Dr A] had numbness over the outer border of her right lower leg and right foot. [Dr C] was made aware of this and stated this was to be expected given the manipulation of the L5 nerve root on the right at the time of his surgery (placement of interbody cage).

[Dr C] and [Dr G] and RN [Ms D] reviewed [Dr A's] progress between 2000 and 2045hrs noting that she was haemodynamically stable, blood loss taken care of. [Dr C] stated in his report that her neurologic status was satisfactory with numbness in the right foot, normal motor power. He makes note that the examination of her sensation was normal. There is however no written record of this in the hospital notes (either by [Dr C], [Dr G] or RN [Ms D]).

RN [Ms D] noted [Dr A's] continuing sensory alteration in the right leg until her last recorded evaluation at 2130hrs.

RN [Ms E] took over the night shift care from 2300hrs to 0700hrs on 28 May 2009. She made note of [Dr A's] cardiovascular and respiratory status, the wound care, pressure cares, in particular, the neurovascular observation at midnight, 2am, 4am, and 6am. She noted no movement in [Dr A's] feet or ankles and no sensation in the feet.

At 0715hrs [Dr C], [Dr G], RN [Ms E] reviewed [Dr A]. [Dr C] stated he noted the neurologic deficit and made a diagnosis of cauda equina syndrome secondary to haematoma He ordered an urgent MRI scan.

0930hrs the MRI scan result was reported as equivocal (i.e. no obvious compression of the cauda equina but a difficult scan to interpret).

[Dr C] stated he felt [Dr A] should be returned to theatre for exploration of the wound and removal of the haematoma to decompress the spinal cord.

[Dr C] stated he contacted [the private hospital] Operating Theatre to request a time for return to theatre.

OR Manager [Ms H] in her report to [the private hospital's] Sentinel Review Panel noted [Dr C] contacted OR. [Dr C] was told all ORs were working and was asked what the patient was coming back to theatre for and was told that an orthopaedic theatre was not available until late afternoon. [Dr C] indicated he did not need an orthopaedic OR and needed basic instrumentation. She stated she had offered him the first theatre that would finish which was OR 3 at approximately 1100hrs. He said 'no to that time and asked for 1400hrs'. She made reference 'that at no time did he indicate this patient was needed to be bought back urgently'.

[Dr A] returned to theatre for a second procedure at 1528hrs leaving the theatre at 1750hrs. Reason for the delay was both surgeon and anaesthetist were held up at another hospital.

The second surgery revealed the spinal sac compressed by a haematoma. This was evacuated and the nerves released.

At the start of the second operation the patient had significant swelling of her airways. It was felt she required ongoing intubation and care in an intensive care unit.

The patient was transferred through to [the public] Hospital arriving at 1815hrs.

The patient remained in [the public] Hospital until transfer through to [the spinal rehabilitation unit] with diagnosis of L3 paraplegia secondary to cauda equina syndrome with bowel and bladder compromise.

The patient was subsequently discharged from [the spinal rehabilitation unit] to her own home on 21 July 2009.

Assessment and Discussion

[Dr A] has suffered a rare but significant complication following lumbar spinal decompressive/fusion surgery. She has developed a haematoma that has compressed her lumbar spinal sac compromising the cauda equina nerve roots and rendering her paralysed at L3 with bowel and bladder involvement.

Prior to her surgery [Dr C's] type written clinical notes had indicated she had suffered pins and needles and numbness in her legs at night but his clinical examination did not mention any reference to sensory change. He noted her motor function was normal as was her bowel and bladder function.

[Dr C] has carried out a microdiscectomy at L3/4 and L4/5 with an extensive decompression of L4/5. He has undertaken both a posterior instrumented fixation from L3 to L5 with pedicle screws and a posterior interbody fusion at L4/5 from a right sided trans-foraminal approach (TLIF).

This is extensive surgery that opens up the posterior spinal canal and decompresses the dural (spinal) sac and nerve roots from L3 to L5.

The interbody fusion at L4/5 on the right requires manipulation of the dural sac and right L4 nerve root above and L5 root below. During this part of the operation pressure can be applied for a certain time by retractors to these nerve roots. He has noted 'scarred dura'.

Her post operative care has been complicated and has involved careful management of her circulatory and respiratory condition due to blood loss sustained at the time of surgery (1200mls) along with ongoing blood loss in recovery.

Of importance neurovascular assessment at 1415hrs indicated normal movement and sensation in both lower limbs.

Following her return to the [general surgical ward] her postoperative condition stabilized (haemodynamically) but it was noted by RN [Ms D] that she had sensory loss — change in her right leg and foot with numbness of the foot.

[Dr C] was made aware of this but commented this was to be expected given the manipulation of the nerves in the lower lumbar spine with placement of the interbody cage into the disc at L4/5.

Of particular note sensation in the left leg was normal and motor power (movement of the feet and toes) was reported as normal in the observation chart.

[Dr C] and [Dr G] reviewed the patient between 2000 and 2045hrs.

[Dr C] (in his written report) stated that he examined [Dr A] noting she had normal movement in her leg, sensory change in her right leg, that her perineal sensation was normal. I am unable to find any hand written records to confirm these examination findings.

This statement by [Dr C] is challenged by RN [Ms E] in her report to the HDC. RN [Ms E] wrote that during hand over from RN [Ms D] it was noted some numbness in the right leg at the evening review by the surgeon but he was 'not concerned about it. ([Ms D] was quoting [Dr C's] words to me)'. She noted there was no verbal or written account that the surgeon was concerned enough to check the perineal sensation. She notes [Dr C's] written letter indicated 'she had normal perineal sensation which also checked'. RN [Ms E] states that had this statement appeared on the nursing notes at the 2000hrs review it would have provided significant alert to the nursing staff of a second post operative surgical concern. She made note that in her experience checking of perineal sensation by a surgeon is a procedure that would be outside a normal routine procedure of a postoperative visit of a patient who had undergone spinal

surgery that day. She made note that this would be a signal for nurses' spinal nerve checking procedure to exclude any neurologic complication.

RN [Ms E] stated in her report that [Dr A] 'could also move her legs normally but could not feel "touch" below her ankles. On closer observation I noted she could not move her feet'. She stated, 'Due to the fact that it seemed subtle to detect I elected to wait and observe. Nothing observable changed at 0200, 0400, 0600hrs as was written in the nursing notes'.

She stated she was concerned about the changes and arranged to talk to [Dr C] and [Dr G] at the morning Ward round at 0715 hrs but on attempting to communicate with [Dr C] was told to be quiet on a number of occasions.

It is unfortunate that RN [Ms E] did not realise the significance of the change in neurologic status between 2130hrs and midnight or notify [Dr C]. [Dr C] reviewed the patient at 0715hrs noting the significant deficit in neurologic function, made the clinical diagnosis of cauda equina syndrome probably on the basis of a haematoma and arranged an urgent MRI scan.

The result of the scan was available at 0930hrs and [Dr C] contacted [the private hospital's] operating theatre to arrange the return of [Dr A] to theatre for evacuation of the haematoma and exploration of the nerves.

There is disagreement in the reports as to the times offered to [Dr C] for surgery, namely 1100hrs in a general theatre or 1400hrs in an orthopaedic theatre.

OR Manager [Ms H] states he was offered 1100hrs, [Dr C] states he was offered 1400hrs.

[Dr G] states he was not aware of the details of [Dr C's] conversation with [the private hospital] theatre.

[Dr C] elected to carry out surgery at 1400hrs though this was delayed to 1528hrs due to problems [Dr C] and [Dr G] had at another hospital.

[Dr A] was noted to have a neurologic change to her right calf and foot at 1500hrs (27.05.2009) on return to the general surgical ward though this was considered to be acceptable given the nature of the operative procedure.

The neurologic condition deteriorated with increased neurologic deficit between 213hrs and midnight when it was recorded that she had loss of movement to both feet and loss of sensation to both feet.

Her second surgery to decompress and remove the haematoma that had formed following the first surgery occurred at 1528hrs on 28 May 2009.

In my opinion the haematoma had started forming postoperatively but the neurologic compromise commenced between 1415 and 1500hrs.

The haematoma continued to cause increasing neurologic dysfunction, initially sensory but involving motor weakness between 2130hrs and midnight on 27 May 2009.

Her surgical decompression of the haematoma was carried out at 1528hrs on 28 May 2009, some 15–16 hours after the onset of motor weakness but 24 hours after the onset of sensory change.

Expert Advice and Opinion
In answer to the specific questions.

(1) What is the risk of haemorrhage during spinal decompression and fusion surgery?
A haematoma is a collection of blood clot. This is a natural occurrence in any spinal surgery; however an expanding haematoma that causes compression of the spinal sac and secondary compression of the contained nerve roots or cauda equina is reported to occur in approximately 0.2–2% of patients undergoing spinal decompression and fusion surgery.

This is a rare but devastating post operative condition.

(2) Did [Dr C's] surgical approach comply with professional standards? If not, please explain.
[Dr C] made a diagnosis of spinal stenosis secondary to spondylolisthesis when he saw [Dr A]. He confirmed this with appropriate radiologic imaging (MRI scanning). His surgical approach of a lumbar decompression at L3/4 and L4/5 along with a fusion from L3 to L5 with a TLIF (interbody) fusion at L4/5 did comply with appropriate professional standards. His operation technique as outlined appeared satisfactory. In his report he indicated this was 'routine', but his hand written notes at the time of surgery made reference to the very scarred dura.

I make reference to this discrepancy as a hand written note of 'scarred dura' usually indicates a degree of difficulty in the dissection of the spinal dural sac or nerve roots. I suspect this is why the blood loss was 1200mls. This was noted by [Dr G]. I am not sure how quickly [Dr C's] dictated operation notes are made available in the ward postoperatively but in his dictated operation note he makes no reference to 'scarred dura'. That said I believe his surgical approach as outlined complies with an appropriate standard.

(3) Was [Dr C's] management plan for [Dr A] at 8.30am on 28 May 2009 appropriate?
[Dr C] had made a diagnosis of postoperative cauda equina syndrome at 0715hrs when he examined [Dr A] the day after his surgery. His request for an urgent MRI scan was quite appropriate and his documented response that the MRI scan was equivocal (did not clearly show compression of the cauda equina) was also appropriate.

His decision to return [Dr A] to the operating theatre was appropriate. However, I have difficulty understanding the conflicting statements that [the private hospital]

theatre offered [Dr C] an operating theatre at 1100hrs (general theatre) or an orthopaedic theatre at 1400hrs. [Dr C] makes note in his report that he was offered a theatre at 1400hrs with no reference to the theatre offer of 1100hrs.

[Dr G] in his report indicates that [Dr C] noted the afternoon theatre time of 1400hrs which was convenient for [Dr G]. [Dr G] was not aware of the details of the telephone conversation between [Dr C] and RN [Ms H], Theatre Manager.

RN [Ms H] in her written report states two theatre times were offered to [Dr C] and that at no stage did [Dr C] indicate the urgency of the decompressive surgery. [Dr C] in his report to the Commissioner states he discussed this and the urgent nature of the case with [the private hospital's] theatre group and they said they could make a theatre available for him at approximately 1400hrs in the afternoon.

[Dr C] notes that 'As no theatre was offered to me at [the private] Hospital to operate on [Dr A] earlier that day, I proceeded to go to [Hospital 2] where I performed three cases. [Dr A] continued under hourly observation by the nursing staff at [the private] Hospital. As per usual routine they were aware to call me if there were any concerns or further deterioration. [Hospital 2] is less than 1km from [the private] Hospital so I could have returned quickly, if required'.

[Dr C] noted that an issue arose with the last case at [Hospital 2] which resulted in a delay in his return to [the private hospital] by one hour.

It is difficult to determine what was communicated by [Dr C] to [the private hospital] operating theatre and what was communicated from [the private hospital] operating theatre to [Dr C].

There is disagreement as to what was said but clearly the 'urgency' of the condition was not communicated or understood, and a delay in return to theatre occurred.

In my opinion I believe it was most important that [Dr C] had 'adequately' communicated the severity of the condition and undertake the decompressive surgery as soon as possible.

I believe it was an oversight on [Dr C's] part to proceed to [Hospital 2] to carry out an operating list of elective surgical patients if and when an operating theatre at [the private hospital] was to be made available.

[Dr C] in his report to the Commissioner indicates he had thought of transferring the patient to a public hospital but decided against this as he believed the time taken with transfer and time to theatre in a public hospital would be no quicker than at [the private hospital].

I find this statement surprising as [Dr C's] priority was to return her to theatre as soon as possible. [The private hospital] would have an obligation to accommodate this surgical emergency. If an adequate explanation and understanding of the emergency had been communicated this patient would have been returned to theatre at an earlier time.

I do not believe this was appropriate.

4) Were the actions [Dr C] took on 28 May 2009 when the extent of [Dr A's] post operative complication identified appropriate? Please discuss.

[Dr C] made the diagnosis of cauda equina syndrome secondary to compression of the cauda equina related to a haematoma. He arranged for an appropriate MRI scan to confirm this and planned to return [Dr A] to theatre.

[Dr C] was clearly upset by discovering [Dr A] was paralysed, due to a compressive haematoma.

I am surprised he has not written any of his clinical findings or plan (this was left to [Dr G]). There has been a lapse in adequate communication with the ward nursing staff and operating theatre staff such that the seriousness of the situation has not been relayed.

In my opinion valuable time has been lost in returning this lady to theatre.

With communication difficulties, the urgency of the problem has not been relayed or appreciated by the operating theatre manager. If the theatre offered at 1100hrs was not accepted then I believe this was not appropriate.

[Dr C] and [the private hospital] through communication difficulties have not provided an appropriate standard of care at this stage to [Dr A].

(5) Please discuss the 12 hour window in treating cauda equina syndrome.

Cauda equina syndrome is an uncommon entity. It is caused by a number of conditions.

Post operative cauda equina syndrome secondary to compressive haematoma is very unusual, but it is one of the most important post operative emergencies in spinal surgery.

Due to its low frequency there have been no quality studies as to the best timing for surgery to remove the compressive haematoma.

Most authors state surgery should be carried out 'as soon as possible' to decompress the compressed nerve roots. A number of authors have reviewed the outcome of patients who have had the cauda equina syndrome decompressed before six hours or to 24 to 48 hours.

1. Hussain et al, reviewed 20 patients with cauda equina syndrome:

   9 decompressed less than 5 hours
   11 decompressed 8–24 hours

There was no 'long term difference' in the outcome of the two groups over a two year follow up.

2. De Long WB et al, in their paper (metanalysis) stated that no study demonstrated the best timing of decompression, but he stated that the majority of authors agreed that an 'urgent decompression' can improve the outcome of cauda equina syndrome.

3. Spector L R et al, noted:

   (a) Frequency of 0.2–1 % of those patients undergoing lumbar disc surgery.
   (b) The clinical diagnosis was paramount.
   (c) There were no pre operative identifiers.
   (d) MRI scan was not reliable.
   (d) An urgent return to theatre was important

These reviews are all retrospective. The condition has occurred and the damage done.

While the literature gives conflicting views about the timing of a return to theatre the authors agree that an 'urgent return as soon as possible' is indicated.

[Dr C] had indicated a '12 hour window' in treating cauda equina syndrome. Most authors believe that the patient should be returned to the operating theatre for decompression of the constricting haematoma as soon as possible. The literature does not confirm the specific timing however most authors are adamant that surgery should be carried out as soon as possible.

[Dr C] was aware [Dr A's] neurologic condition had deteriorated with motor weakness around midnight though the sensory loss had commenced at 1500hrs on 27 May 2009. Therefore using his 12 hour window he should have carried out the surgery well before midday on 28 May 2009.

It is difficult to understand that the seriousness of [Dr A's] condition was not communicated adequately or that the 1100hrs theatre offer was not accepted by [Dr C] given his reasoning in his report to the Commissioner.

The literature would indicate that there is no difference in the outcome of patients decompressed less than six hours after the onset of cauda equina syndrome as compared to those decompressed up to 24 hours after the onset of the syndrome.

The problem is we simply do not know. Each patient is an individual and I believe an appropriate standard of care is to return the patient to theatre at the earliest available opportunity in order to give them the best chance of recovery.

In my opinion this is not a condition that the timing of decompression surgery can be delayed or debated.

This condition is a 'surgical emergency' and theatre managers would or should know this.

The communication of this condition is of paramount importance to the appropriate personnel.

The failure of this communication between [Dr C] and [the] theatre is not appropriate.

(6) Did [Dr C's] documentation comply with professional standards?
[Dr C's] type written notes are of an adequate standard however his written operative notes are scanty though the post operative orders do indicate neurovascular checks to be carried out.

I note there are no postoperative written assessments by [Dr C] in the hospital notes, in particular, his examination at 2000hrs on 27 May 2009, or 0715hrs on 28 May 2009.

His type written report to the Commissioner indicates he carried out a full examination including assessment of perineal sensation.

This is not confirmed in the hospital notes in hand written form.

RN [Ms E] makes reference to the lack of this documentation which she indicates would have highlighted concern about the possibility of neurologic compromise.

The following morning at 0715hrs there is no hand written documentation by [Dr C] regarding the neurologic function other than that provided by [Dr G] indicating that there was absent plantar flexion.

There is no written documentation as to the diagnosis of cauda equina syndrome and nothing to confirm in the written notes that there was communication with the ward staff or theatre regarding the seriousness of the condition and the need for return to theatre.

[Dr C] makes reference to these communications in his report to the Commissioner however I am unable to find any reference of this in the hospital notes to confirm such.

[Dr C] was clearly upset by the clinical findings when he examined [Dr A] at 0715hrs on the morning of 28 May 2009 (confirmed by [Dr G] and RN [Ms E's] report) however I find it surprising that he has not written any notes regarding his clinical findings at that time.

Apart from [Dr G's] short reference to lack of plantar flexion there is no other note in the [private hospital] notes indicating the extent of neurologic compromise or indeed neurologic findings.

I believe this hand written documentation is important at that time in order to have a reference to detect any further neurologic compromise. [Dr C] in his report to the Commissioner indicated he had instructed the nurses to notify him by phone should there be any deterioration in her condition.

He has not however written anything to that effect and it would be difficult for nursing staff to know what further neurologic deterioration would be.

RN [Ms F] Acting Charge Nurse, [the] Ward in her report to the Commissioner makes reference to being present with [Dr C] at 0715hrs. She notes he ordered an MRI scan and she arranged this accordingly. She noted [Dr C] left orders for 'close observation' until the MRI scan was done and further management was planned. This would be quite difficult given the fact that he had not written any of his neurologic findings at 0715hrs.

(She does however note 'at no point did [Dr C] inform me about the return to theatre or the time of surgery. There was no discussion with me about the results of the MRI scan'.)

I believe this was a departure from an appropriate standard of care regarding the written documentation. I believe this is a moderate departure from an appropriate standard of care. I believe it was important for [Dr C] to document his findings at 0715hrs as base line for observation for further neurologic compromise.

[The private hospital]

(1) Were systems in place at [the private hospital] in May 2009 adequate to ensure that emergency post operative complications from spinal surgery were adequately managed? Please comment.

(2) Are there any aspects of the care provided by [Dr C] and [the private hospital] that you consider warrant additional comment?

From the written documentation provided I do not believe [the private hospital] had adequate systems to ensure the significance of this emergency postoperative complication could be identified.

The preadmission form provided did not have any reference to preoperative neurologic symptoms or signs.

[Dr C's] typewritten letters and MRI scan report provided the basis of clinical documentation.

There is reference in [Dr C's] report to the Commissioner that the patient had preoperative sensory changes. However, I should note in his type written letter to [Dr J] he makes no reference to sensory examination nor am I able to identify any written documentation as to any preoperative neurologic deficit.

The patient has developed a neurologic deficit postoperatively as identified by RN [Ms D] at 1500hrs. She has notified [Dr C] who has indicated this was expected given the manipulation of the nerve at the time of surgery. RN [Ms D] has faithfully recorded the changes in the post operative chart through to 2130hrs.

RN [Ms E] has taken over the care of [Dr A] for the night shift and has faithfully documented the neurologic compromise at midnight, 2am, 4am, 6am with loss of motor power to the feet and toes as well as change in sensation over the dorsum of both feet.

Clearly the examination was carried out and documented carefully by RN [Ms E] however the importance of this progressive neurologic deterioration has not been realized and [Dr A] has developed a cauda equina syndrome that has gone undiagnosed for between 15 hours and 24 hours.

[Dr C] was made aware of the change in [Dr A's] neurologic condition (altered sensation in right lower leg) from 1500hrs. He has made a plan to review [Dr A] at 2000hrs. He was concerned about her neurologic status and examined her at this stage. It is very unfortunate he did not write his findings down as I believe RN [Ms E] may well have seen this and taken note.

These written communications are important. When RN [Ms E] took over [Dr A's] care she had quite a number of post-surgical observations to make. She has written extensive notes about [Dr A], but although noting [Dr A's] neurologic condition, she has not realised 'significance of the change'.

I suspect that had [Dr C] written an assessment of [Dr A's] neurologic findings at 2000hrs (altered sensation right lower leg at 1500hrs is a change from that noted at 1415hrs) then RN [Ms E] would have been more likely to 'grasp the significance of further change'.

I note [the private hospital] has undertaken a sentinel event management plan and now the preadmission documentation for discectomy, decompression clearly states 'pre operative neurologic symptoms or signs'.

[The private hospital] has moved to address deficiencies noted in this sentinel event investigation. Their registered nurse IPS orientation handbook (Version 1.6 December 2009) clearly outlines this. Further documentation related to competency checklists for a registered nurse, […] ward, indicates the changes introduced).

[The private hospital] has included documentation of the orthopaedic/general surgery nurse capability building programme instructional course.

It includes operative complications of orthopaedic surgery (spinal fusion surgery — the reasons leading to, the surgery and recovery phase — complications; [Orthopaedic Surgeon]).

I note the change to theatre documentation of 'Urgent return to theatre during business hours', states, 'It is not the responsibility of [the private hospital] staff to prioritise urgent patients or make clinical decisions regarding urgency or priority of patients. Decisions of this nature must be made in a consultative collaborative manner between surgeon and anaesthetist. Under no circumstances will nursing staff be pressurised into making a judgement regarding prioritisation which require clinical assessment or patient urgency'.

[The private hospital] has evaluated this sentinel event very seriously and have introduced procedures and written pathways to identify this communication problem and rectify it before any future catastrophe occurs.

I believe this is most appropriate under the circumstances.

It would appear from the written documentation provided, [Dr C] and the senior nurses involved (RN [Ms E], RN [Ms D], OR Manager RN [Ms H], Clinical Services Manager [Ms M]) that there are variances in the communication process.

[Dr C] stated he examined [Dr A's] perineal sensation at 2000hrs.

RN [Ms E] challenges his written statement about perineal sensation examination. RN [Ms D] notes a reluctance to ring surgeons (including [Dr C]) at night for fear of derision and being laughed at.

OR Manager [Ms H] disputes the times offered by [the private hospital] theatre to [Dr C] for a return to theatre.

RN [Ms F] noted [Dr C] left orders but at no point did he inform them as to a return to theatre.

CSM [Ms M] noted [Dr C] stated [Dr A's] family only wanted to communicate with [Dr C] and yet when she spoke to [Dr B] herself he said this was not the case.

These variances in what was said or communicated by themselves are not important but when seen together and in context indicate a failure of [Dr C] to communicate adequately with his 'team'.

There has been a failure of appropriate professional communication between [Dr C] and [the private hospital] staff.

While this post operative emergency is exceedingly uncommon in hospital practice it is of such significance that it cannot be missed.

I believe it was important that [Dr C] and [the private hospital] team had an adequate communication network of understanding. I believe this has also contributed to this serious outcome.

It is vital to maintain professional standards of communication and respect.

Patients such as [Dr A] have demanding surgical procedures, sometimes difficult postoperative recoveries and as such it is important that the whole surgical team is comfortable and each member respects the abilities and is aware of the abilities of the team members. Professional communication between a surgeon and senior nursing staff is paramount to provide an appropriate standard of care that patients such as [Dr A] should expect.

[The private hospital] and [Dr C] need to work together to address these issues.

I believe [the private hospital] as a result of the sentinel event investigation have moved to introduce these changes and I believe the written documentation provided goes a long way to addressing these issues.

[Dr C] should consider becoming involved in [the private hospital's] nurses' teaching programme and professional development.

The session on spinal fusion surgery, recovery and complications would be an excellent place for a discussion on post operative management of these rare problems.

I suspect this would be a good forum for staff involved. They would then understand the difficulties of these demanding problems.

I believe [Dr C] would find his nursing colleagues become powerful allies when an open and free exchange of views occurs on a professional footing.

To treat these difficult problems [Dr C] needs to be able to rely on his nursing staff practising at the highest standard. His nursing staff need to be able to rely on him to provide a high standard of communication (written and oral) in order to manage these patients appropriately.

I trust [Dr C] and [the private hospital] will reflect and work towards ensuring appropriate professional communication amongst colleagues.

I make note that the care provided by [Dr G] was of an appropriate standard. This is confirmed by [the Consultant Anaesthetist].

Summary

(1) Whether [Dr C] provided [Dr A] with services of an appropriate standard on 27 and 28 May 2009 in relation to the spinal surgery he performed.

I believe he did provide an appropriate standard of care in relation to the spinal surgery performed.

(2) Whether [Dr C] provided [Dr A] with services of an appropriate standard on 28 May 2009 in relation to managing her post operative care.

I do not believe [Dr C] provided an appropriate standard of care in managing her post operative care. I believe this is a moderate departure from an appropriate standard of care.

(3) Whether [the private hospital] provided [Dr A] with services of an appropriate standard on 27 and 28 May 2009.

I do not believe [the private hospital] provided [Dr A] with services of an appropriate standard. I believe this is a moderate departure from an appropriate standard of care.

References

1. Hussain et al — Cauda Equina Syndrome: Outcome and Implications: British Journal of Neurosurgery 2003; 17; 164.
2. De Long WB et al — Timing of Surgery in Cauda Equina Syndrome with Urinary Retention, metanalysis: Journal of Neurosurgery in Spine 2008; 8; page 305.
3. Spector L R et al — Cauda Equina Syndrome, Journal American Academy Orthopaedic Surgeons Volume 16, Number 8, August 2008, page 471.
4. John P. Kostuik, M.D. Neurosurg Focus. 2004;16(6) © 2004 American ion of Neurological Surgeons."

B F Hodgson

Appendix B — Independent expert acute surgical nursing advice

The following expert advice was obtained from registered nurse Megan Polglase.

"I have been asked to provide an opinion to the Commissioner on case number 09HDC00158, and I have read and agreed to follow the Commissioner's Guidelines for Independent Advisors.

Megan Polglase — Registered Nurse
I am a Registered Nurse (1990) with 19 years experience. I have a Postgraduate Diploma in Nursing (2006), Graduate Certificate in Paediatric Critical Care Nursing and a Post basic certificate in Intensive Care Nursing (1996). The majority of my clinical experience has been intensive care and acute surgical nursing, with experience also in Germany and Australia. In the more recent years I have worked as Clinical Surgical Nurse Consultant and then Nurse Educator at HVDHB in the Nursing Development Unit. During this time I have also worked as a Clinical Training Associate for Massey University and Whitireia Polytechnic, Bachelor of Nursing programmes. Currently, due to family commitments I am working as Registered Nurse on the casual pool for HVDHB.

Supporting Information

- Complaint to the Commissioner by [Dr B], received HDC 16 February 2010, marked with an 'A'.
- Response from Dr [Dr C], received HDC 27 April 2010, marked with a 'B'.
- Response from RN [Ms D], received HDC 7 May 2010, marked with a 'C'.
- Response from RN [Ms E], received HDC 18 May 2010, marked with a 'D'.
- Response from anaesthetist [Dr G], dated 25 May 2010, marked with an 'E'.
- Response from RN [Ms F] received HDC 16 June 2010, marked with an 'F'.
- Response from [the private hospital], received 7 May 2010, marked with a 'G'.

Expert Advice Required

To advise the Commissioner whether, in my opinion, [Ms D], [Ms E] and [the private hospital] provided surgical services to [Dr A] of an appropriate standard. If not already addressed above please comment on the following:

[Ms D]

1. Did [Ms D's] assessment and monitoring of [Dr A's] postoperative condition on 27 May 2009 meet professional standards? Please comment.

[Ms E]

2. Did [Ms E's] assessment and monitoring of [Dr A's] postoperative condition on 27/28 May 2009 meet professional standards? Please comment.
3. Was there anything else that [Ms E] should have done?
4. Did [Ms E's] documentation meet professional standards? Please comment.

[The private hospital]

5. Were the systems in place at [the private hospital] in May 2009 adequate to ensure that emergency postoperative complications from spinal surgery were adequately managed? Please comment.

Are there any aspects of the care provided by [Ms D], [Ms E] and [the private hospital] that you consider warrant additional comment?

Background

On the morning of 27 May 2009, Mrs [Dr A] (69 years) had surgery at [the private hospital] to decompress a two-level lumbar spinal stenosis (L3/4 & L4/5). Surgery was performed by orthopaedic surgeon [Dr C]. At recovery [Dr A] was moving all limbs. At 8pm, [Dr C] and anaesthetist [Dr G] reviewed [Dr A] on the ward, noting that she had had heavy bleeding from the wound, and that she had some numbness in the dorsal aspect of her right foot. [Dr C] believed this was due to stretching of the L5 nerve from the cage used in surgery. This review was documented by [Dr G].

[Dr A's] circulatory observations were monitored half hourly until 7.30pm and her vital signs half hourly until 10pm and then hourly until 2pm the following day. The records show that [Dr A] had heavy bleeding from the wound site during the afternoon and evening, and some right sided numbness. (It is assumed that it was her right foot that was numb, given [Dr C's] note, but the nurses did not specify the site.) Although [Dr A's] vital signs were checked at 10pm and 11pm, there were no circulatory observations performed between 9.30pm and midnight. The two hourly circulatory observations from midnight to 6am noted that [Dr A] had no sensation or movement in her ankles and feet. No action was taken.

Two registered nurses had been responsible for [Dr A's] postoperative care. RN [Ms D] cared for [Dr A] during the afternoon of 27 May until change of shift on 11.15pm, when RN [Ms E] took over the care of [Dr A] until 7am on 28 May.

At 7.20am, [Dr C] and [Dr G] reviewed [Dr A], noting the neurological abnormality. An MRI scan was organised and performed at 9am. The MRI indicated a haematoma compressing the nerve branch. [Dr C] advised [Dr A] that she would need further surgery to remove the haematoma.

[Dr C] was offered two theatre times, 11am in general theatre, and 2pm with an orthopaedic team. [Dr C] chose the 2pm option, however [Dr A's] surgery did not commence until 3.28pm because [Dr C] was delayed operating at another hospital. Following the surgery [Dr A] was transferred to [the public] Hospital, intubated, as she had severe oedema of her airways, which was thought to be related to systemic inflammatory response syndrome.

[Dr A] had developed cauda equina and bowel and bladder function. On 12 June, she was transferred to the [spinal rehabilitation unit], where she is currently receiving intensive physiotherapy to mobilise.

[Ms D]

1. **Did [Ms D's] assessment and monitoring of [Dr A's] postoperative condition on 27 May 2009 meet professional standards? Please comment.**

[Ms D] is a Registered Nurse employed by [the private hospital] since 2000. [Ms D] was the nurse assigned to [Dr A] on the afternoon of 27 May 2009 between 1430 hours and 2315 hours. During this time [Ms D] provided competent nursing care to [Dr A] postoperatively following her L3–4 L5–S1 spinal decompression and instrumented fusion under general anaesthetic.

[Ms D's] documentation of her assessments, interventions and their effect was clear and concise. These were documented in the integrated patient notes (contained in the clinical pathway for Discectomy & Decompression and Microdiscectomy, fluid balance chart, circulatory observation chart and patient observation chart).

[Ms D's] documentation of [Dr A's] observations were timely and accurate until 1930 hours. Possibly due to the stability of [Dr A] neurovascularly during the afternoon shift [Ms D] changed the neurovascular observations from ½ hourly to 2 hourly although the rationale is not mentioned on the circulatory observation chart or in the patient notes. At this time [Ms D] continued to monitor [Dr A's] vital signs ½ hourly until 2230 hours. It is of concern that the Early Warning Scoring System (EWSS) as mentioned in detail in question 5 was not documented. However the observations were being assessed ½ hourly and [Ms D] notified the medical staff immediately of changes and implemented the appropriate interventions.

According to [Dr C's] response to the Health and Disability Commissioner at approximately 2045 hours [Dr G] and [Dr C] assessed [Dr A], she appeared to be comfortable. A neurological examination was undertaken and at this time she had a little bit of numbness in the L5 distribution of her foot which is not uncommon following this type of surgery. There appeared to be no power deficit having full motor function of her lower limbs and no evidence of perineal sensation loss. This was not documented in the patient notes at the time by [Dr C].

It is not documented as to why the neurovascular observations frequency was decreased and I can only assume that it was due to [Dr A's] apparent stability during the shift. It is stated in [Dr C's] report that '[Dr A] was left with an hourly neurological observation chart as is my usual practice with spinal patients'. There is no documented evidence of this in the integrated notes. However it does state on day one post operation in the clinical care pathway that the pulse, respiratory rate and blood pressure 4 hourly if stable or otherwise indicated. 'Hourly' is handwritten next to this without indication of who wrote it. There seemed to be an assumption that this included neurovascular observations. There is no reference to or inclusion of neurovascular observations in the Discectomy, Decompression, Micro Discectomy clinical care pathway, 2008. [Dr C's] operation notes clearly states N/V checks but not frequency.

In my opinion, the frequency of neurovascular observations required following spinal surgery needs to be noted. In the updated version of the Discectomy, Decompression,

Micro Discectomy clinical care pathway, reviewed 17 June 2009 states on post-operation check CWMS 4 hourly — record on Circulatory Observation Chart. This is not consistent with the neurovascular observations frequency in the Care of the post-operative orthopaedic procedures procedure.

Overall [Dr A's] observations remained relatively stable throughout the shift. However on several occasions during the shift [Dr A's] blood pressure was recorded as low. This was documented and the intervention of fluids appropriately charted in the fluid balance chart and integrated progress notes. [Dr A's] cardiovascular observations were documented regularly throughout the shift including pain levels. [Dr A's] pain was well controlled throughout the shift. The observations and timing of such that were done on [Dr A] were appropriate following the surgery she had that morning. From the time [Dr A] returned from theatre until 2300 hours the following observations had been taken on a regular basis

- Pain and sedation score,
- Oxygen saturations,
- Respiratory rate,
- Temperature,
- Blood pressure,
- Wound site including drains
- Fluid balance — Input and Output
- Neurovascular of both legs, excluding capillary return due to patient wearing nail polish.

I believe that the assessment and monitoring of [Dr A's] postoperative condition was undertaken competently by [Ms D] and did meet professional standards. My only cause for concern however was the change in frequency of the neurovascular observations had they been continued hourly during this period [Dr A's] deterioration may have been detected and acted upon in a timelier manner.

[Ms D's] integrated progress notes comply with the Nursing Council of New Zealand competencies for Registered Nurses. Competency 2.3 ensures documentation is accurate and maintains confidentiality of information. An indicator of this maintains clear, concise, timely, accurate and current client records within a legal and ethical framework.

[Ms E]

2. **Did [Ms E's] assessment and monitoring of [Dr A's] postoperative condition on 27/28 May 2009 meet professional standards? Please comment.**
3. **Was there anything else that [Ms E] should have done?**

[Ms E] is a Registered Nurse since 1964. [Ms E] is employed by [the private hospital] to work permanent nights in [the ward]. [Ms E] was assigned to [Dr A] on the night of 27/28 May 2009 postoperatively following her L3–4 L5–S1 spinal decompression and instrumented fusion under general anaesthetic. According to [Ms E's] response to the Health and Disability Commissioner her focus overnight was on monitoring [Dr A's]

haemodynamic stability especially further bleeding and adverse effects from her intravenous fluid intake during the afternoon shift. [Dr A] had been haemodynamically unstable during the afternoon requiring fluid resuscitation. This has been mentioned in question 1.

[Ms D] handed over [Dr A] at 2315 hours to [Ms E's] care. The first set of observations were taken by [Ms E] at 2400 hours and included:

- Pain and sedation score
- Oxygen saturations
- Respiratory rate
- Temperature
- Blood pressure
- Wound site including drains
- Fluid balance — Input and Output
- Neurovascular of both legs

The neurovascular observations were assessed on her lower extremities and included colour, warmth, movement, sensation, swelling, bleeding from operation site, pain, pulses and capillary return. The capillary return had not been done in the previous shift due to [Dr A] wearing toe nail polish as stated by [Ms D]. I am to assume that the nail polish had been removed although not documented for [Ms E] to have performed the capillary return assessment.

[Ms E] documented the neurovascular deficit at 2400hours on the Circulatory Observation Chart stating loss of movement in ankles, feet both right and left and no sensation in either foot. This was a change. At this time peripheral pulse and pain assessments ceased.

Loss of sensation or mobility should have raised concern about the possibility of nerve damage as stated in the Care of Post Operative Orthopaedic Procedures, 2008. [Ms E] made the decision based on her clinical assessment of [Dr A] to wait and see until 0700 hours when [Dr C] had a prearranged appointment to assess [Dr A]. Judge (2007) states 'neurovascular deficit is suspected the nurse should report it to a member of the medical team as a matter of urgency so that it can be reviewed'.

This deterioration in [Dr A's] condition as documented by [Ms E] at 2400hrs should have prompted a phone call to the surgeon regardless of the time. In my opinion it would be expected that the nurse report immediately so appropriate action could then be taken. In this case, [Ms E] should have reported the deterioration immediately after the observations were documented at 2400 hours and not chosen to wait for [Dr C's] morning assessment of the patient.

Domain 1, competency 1.4 in the domains of competence for Registered Nurses (2005) states that the nurse should promote an environment that enables client safety, independence, quality of life and health. An indicator for this competency states that the nurse will 'identify and report situations that affect client or staff members' health or safety'.

In my opinion, another avenue for [Ms E] was to seek advice from the Duty Manager. Duty Managers are available for nurses to discuss patient care and would have been able to advise [Ms E] on contacting the surgeon and increasing her neurovascular observations until the surgeon was able to give further instruction. The [private hospital's] Escalation of Care policy, June 2006 states contact Duty Manager (after hours) and outline your concerns.

It would be usual practice to increase the frequency of neurovascular observations when such deterioration in condition was noted. [The private hospital's] Recovery Unit has a Care of the Post Operative Orthopaedic Procedures which outline nursing management for orthopaedic procedures dated October 2008. In this procedure it is stated that neurovascular observations should be checked at least ½ hourly and documented and to notify the Surgeon regarding deficits that were not present pre-operatively.

During the time from 2400 hours until 0700 hours the neurovascular observations were taken 2 hourly and not more frequently as would be expected. This shows a deficit in [Ms E's] knowledge and understanding of the importance of neurovascular observations, the implications these changes can indicate and the serious risk of Cauda equina.

According to the Joanna Briggs Institute (2009) 'neurovascular impairment is frequently caused by pressure on the nerve or on the vascular supply to an extremity. If neurovascular impairment is detected, interventions need to take place immediately to prevent damage, ischemia, deformity or loss of function. These can all lead to permanent disability, amputation or possible death'.

I am unable to comment on whether [Dr C] would have taken [Dr A] to theatre at an earlier time had he been made aware of her deterioration at this earlier time, however I do feel this lack of reporting impacted on [Dr A's] ultimate outcome.

In my opinion, [Ms E] was remiss in not contacting the surgeon [Dr C] in a timely manner to ensure that [Dr A] had access to appropriate and timely care. [Ms E's] actions did not meet professional standards in her assessment and monitoring of [Dr A's] postoperative condition on 27/28 May 2009. This would incur moderate disapproval from peers.

4. Did [Ms E's] documentation meet professional standards? Please comment.

[Ms E's] standard of documentation was poor; it was hard to follow the sequence of events that occurred on the shift of 27/28 May 2009. [Dr A's] neurovascular deterioration was first noted at 2400 hours, there is no documentation of this in the nursing progress notes. In my opinion, this should have been documented at the time with the intervention and expected outcome. In this case it would have been to contact [Dr C] and act on his instruction.

[Ms E's] documentation of her assessments, interventions and their effect were unclear. These were documented in the integrated patient notes (contained in the clinical pathway for Discectomy & Decompression and Microdiscectomy, fluid balance chart, circulatory observation chart and patient observation chart).

There is no documented evidence of interventions and outcomes in the integrated progress notes. An example of this was at 0300 hours [Dr A's] BP dropped to <90/40 with a urine output of 28ml/hour. This is not reported in the night nursing report, even though [Dr G] clearly stated in his clinical note at 2045 hours goal BP >90 with adequate urine and the goal urine output 30ml/hour. If there are any concerns [mobile telephone number] anytime. [Ms E] appears to have taken no action. [Dr G] was not notified and the observations were not increased to monitor closely.

It is of concern that at the time of noting a change in sensation and movement of the lower extremities the pain and peripheral pulse assessments ceased. The change should have prompted more detailed and frequent assessments. However the documentation on the circulatory observation chart remained incomplete throughout the remainder of the shift. There is space available under 'comments' on circulatory observation chart to expand further on your findings.

The fluid balance chart was also incomplete with no recordings at 0600 and 0700 hours for urine output. [Dr G] had made a note at 2045 hours to maintain a goal urine output of 30ml/hour. This is of concern as [Dr A's] fluid balance was positive 4169 ml this was not documented in the patient's notes.

Next to clinical care, accurate documentation cannot be underestimated. Domain 2, competency 2.3 in the domains of competence for the Registered Nurse scope of practice requires a nurse to ensure documentation is accurate and maintains confidentiality of information. An indicator of this maintains clear, concise, timely, accurate and current client records within a legal and ethical framework.

In my opinion, documenting in the clinical care pathway integrated notes chronologically throughout the shift as assessments were made, may have highlighted a need for reporting earlier. Nurses need to communicate to all health care professionals the plan of care, the assessment, the interventions and the effectiveness of those interventions. These were not documented.

In this instance, [Ms E's] documentation did not meet professional standards and this conduct would be viewed by her peers with moderate disapproval.

[The private hospital]

1. **Were the systems in place at [the private hospital] in May 2009 adequate to ensure that emergency postoperative complications from spinal surgery were adequately managed? Please comment.**

[Dr A] was nursed in a general surgical ward as an overflow patient postoperatively following her L3–4 L5–S1 spinal decompression and instrumented fusion under

general anaesthetic on 27 May 2009. I will comment on the systems in place at [the private hospital] pertaining to nursing.

In my opinion [the private] Hospital had insufficient systems in place to ensure that emergency postoperative complications from spinal surgery are adequately managed. In this instance, the avenues that were available to ensure that complications were adequately managed were not followed.

Clinical Care Pathways are a guide to nursing patients following spinal surgery and are based on best practice, Joanna Briggs Institute (2009). These pathways provide nurses with the basic care plan for nursing patients post spinal surgery. Each patient still needs to be assessed individually and medical intervention as required. Nursing staff have access to Joanna Briggs Institute — Acute Care Practice Manual 2009.

The Care of the Post-Operative Orthopaedic Procedures Procedure, [the private hospital] Recovery Unit outlines nursing management for orthopaedic procedures dated October 2008. This policy clearly outlines assessments and interventions for post-operative patients.

The Escalation of Care Policy acknowledges that patient care is prescribed according to the specialist preference and each patient has the right to the best possible and most appropriate care. This outlines the process of contacting surgeons 'as healthcare professionals the nurses must act as patient advocates and should feel free to discuss management of care with Specialists'. Clinical Charge Nurses or Duty managers (after hours) are available for nurses to discuss patient care and intervention.

One concern is the matter of frequency of neurovascular observations. The frequency of neurovascular observations was not documented in the clinical care pathways or surgeon preferences sheet. In my opinion, the frequency of neurovascular observations required following spinal surgery needs to be noted. In the updated version of the Discectomy, Decompression, Micro Discectomy clinical care pathway, reviewed 17 June 2009 states on post-operation check CWMS 4 hourly — record on Circulatory Observation Chart. This is not consistent with the neurovascular observations frequency in the Care of the post-operative orthopaedic procedures procedure or what was deemed routine by [Dr C] in his response to the Health and Disability Commissioner.

Another great concern is the Early Warning Scoring System (EWSS). On the patient observation chart is the EWSS with parameters on the back of the chart. If the patient's score is 4 call the Surgeon and/or Anaesthetist using SBAR. SBAR stands for situation, background, assessment and recommendation. The EWSS is a simple guide to determine a patient's risk, it covers 4 physiological readings which include systolic blood pressure, heart rate, respiratory rate, body temperature and one observation level of consciousness. These are then compared to the normal range to generate a score. It is of concern that this scoring system was not used over the 2 shifts in question. In my opinion, all patients should have their EWSS assessed when their observations are taken. There is there a lack of understanding of the importance of early intervention and documentation.

I am aware from the letter written by [the] Chief Operating Officer, [the private hospital] that measures have been taken to improve knowledge of the registered nurses on [the ward] through in-service and training. This was done by placing a clinical nurse educator onto the roster to provide clinical support for the staff of [the ward] and providing educational and training opportunities.

It is common for night nurses to be missed in educational opportunities. I have noted from [the Chief Operating Officer's] letter steps have been taken to provide further education. [Ms E] has been asked to attend the next Orthopaedic capability building programme as a consequence of these events.

My concern is how nurses are informed and updated of these systems that are in place. I am limited in my knowledge of educational and training opportunities available to nurses at [the private hospital] and how accessible they are for staff to attend. [The private hospital has] a comprehensive orientation programme for new registered nurses.

I believe the systems in place at [the private hospital] in May 2009 were below an adequate standard to ensure that emergency postoperative complications from spinal surgery were adequately managed. This conduct would be viewed by peers with mild disapproval.

Summary

1. I believe that the assessment and monitoring of [Dr A's] postoperative condition by [Ms D] did meet professional standards. My only cause for concern however was the change in frequency of the neurovascular observations; had they been continued hourly during this period [Dr A's] deterioration may have been detected and acted upon in a timelier manner.
2. I am unable to comment on whether [Dr C] would have taken [Dr A] to theatre at an earlier time had he been made aware of her deterioration at this earlier time, however I do feel this lack of reporting impacted on [Dr A's] ultimate outcome. In my opinion, [Ms E] was remiss in not contacting the surgeon [Dr C] in a timely manner to ensure that [Dr A] had access to appropriate and timely care.
3. [Ms E's] actions did not meet professional standards in her assessment and monitoring of [Dr A's] postoperative condition on 27/28 May 2009. This would incur moderate disapproval from peers.
4. In this instance, [Ms E's] documentation did not meet professional standards and this conduct would be viewed by her peers with moderate disapproval.
5. It is common for night nurses to be missed in educational opportunities. I have noted from the Sentinel Report steps have been taken to provide education.
6. I believe the systems in place at [the private hospital] in May 2009 were below adequate to ensure that emergency postoperative complications from spinal surgery were adequately managed. My concern is how nurses are informed of these systems that are in place. I am limited in my knowledge of educational opportunities available to nurses at [the private hospital] and how accessible they are for staff.

References

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Nursing Council of New Zealand. (2007) *Competencies for the Registered Nurse Scope of Practice*

Thank you for the opportunity to review this case and provide the Commissioner with my opinion based on experience, national nursing standards and codes of practice.

Megan Polglase
Registered Nurse