An Ambulance Service

Senior Medical Officer, Dr B

A District Health Board

A Report by the

Health and Disability Commissioner

(Case 12HDC01019)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

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Executive summary

Background

1. On 23 March 2012, Mr A was riding a bicycle when he collided with a stationary vehicle. Upon impact his helmet shattered into a number of pieces and he fell to the ground. Mr A was unable to move his limbs immediately following the accident. This condition is known as transient quadriplegia.

2. About 15 minutes later the ambulance (owned and operated by an ambulance service) arrived at the scene. By the time the ambulance crew arrived, Mr A could again move his limbs. There is no record in the ambulance crew's notes of Mr A's inability to move his limbs immediately following the accident. The ambulance crew immobilised Mr A and took him to the Emergency Department at the public hospital.

3. The triage nurse in the Emergency Department noted that Mr A denied pins and needles in his limbs, but had felt he could not move his limbs after the accident. Following triage, Mr A was seen by senior house officer Dr C. Dr C recorded Mr A's current symptoms in the clinical notes, but he did not record Mr A's earlier transient quadriplegia. Dr C requested X-rays of Mr A's cervical spine, thoracic spine and shoulder. The X-rays were reviewed by Dr C and the senior medical officer, Dr B. Dr C and Dr B noted that the cervical spine X-rays were incomplete. However, after examination they determined that Mr A had no clinical signs of a cervical spinal cord injury. Mr A was discharged with prescriptions for pain medication and told to come back if the pain worsened or did not improve.

4. Following discharge, Mr A experienced a number of adverse effects from the accident. During the course of subsequent treatment, medical investigation revealed that Mr A had suffered a spinal cord injury from the accident.

Findings

5. As the senior doctor with overall responsibility for Mr A's care and management, Dr B made a decision to discharge Mr A without sufficient information about his condition, including his history of transient quadriplegia, and without adequate views of his cervical spine X-ray. Furthermore, Dr B did not provide Mr A with head injury advice on discharge. Accordingly, Dr B failed to provide services to Mr A with reasonable care and skill and breached Right 4(1)[1] of the Code of Health and Disability Services Consumers' Rights (the Code).

6. The Commissioner made adverse comment about Dr C's failure to take an adequate history from Mr A. The Commissioner also commented that the documentation Dr C completed on Dr B's behalf did not include all relevant information, as it should have.

7. In addition, the Commissioner made adverse comment about the ambulance crew's failure to record Mr A's transient quadriplegia.

8. The Commissioner found that the district health board did not breach the Code.

[1] Right 4(1) of the Code states: "Every consumer has the right to have services provided with reasonable care and skill."

Complaint and investigation

9. The Commissioner received a complaint from Mr A and Mrs A about the services provided to Mr A by the Emergency Department at the public hospital. The following issues were identified for investigation:

- *Whether the ambulance service provided Mr A services of an appropriate standard in March 2012.*
- *Whether Dr B provided Mr A services of an appropriate standard in March 2012.*
- *Whether the district health board provided Mr A services of an appropriate standard in March 2012.*

10. An investigation was commenced on 17 June 2013.

11. The parties directly involved in the investigation were:

Mr A	Complainant, consumer
Mrs A	Complainant, consumer's wife
Ambulance service	Provider
Dr B	Senior medical officer
Dr C	Senior house officer
District health board	Provider

Also mentioned in this report:

Mr D	Witness
Mr E	Witness

12. Independent expert advice was obtained from paramedic Mr Geoff Procter (**Appendix A**), and emergency medicine specialist Dr Shameem Safih (**Appendix B**).

Information gathered during investigation

Accident

13. On 23 March 2012 at approximately 4.05pm, Mr A was riding a bicycle, with his shoes clipped into the pedals, when he collided head first with a stationary van that had stopped on a blind corner. According to Mr A, he was unable to move his arms or legs and had no feeling from his neck down immediately after the collision, but the feeling had returned by the time the ambulance arrived. This condition is known as transient quadriplegia.[2]

14. At 4.18pm an ambulance arrived at the scene with two crew members. The crew members were a Basic Life Support Paramedic in paid full-time employment with the

[2] Transient quadriplegia is a transient neurological event lasting for minutes up to 36 hours, with motor and/or sensory changes ranging from bilateral hand burning/tingling to complete paralysis. Transient quadriplegia is a key clinical indicator of a spinal cord injury.

ambulance service, and a volunteer Emergency Medical Technician. The ambulance crew examined Mr A and immobilised his neck in a cervical collar, recording on the Patient Report Form that there was "some deformity in [the] thoracic spine where [the] spine pain [is] located". The Patient Report Form also recorded that Mr A had not been knocked unconscious but that his cycling helmet had been destroyed.

15. Mr A told HDC that when the ambulance officers arrived at the scene and asked him what had happened, he told them that he had fallen to the ground and had been unable to feel anything.

16. Two witnesses at the scene, Mr D and Mr E, also stated that Mr A told the ambulance crew about his transient quadriplegia:

- Mr D stated: "I arrived at the scene of the accident … There were other people there also, who attempted to try to sit [Mr A] up. I witnessed [Mr A] verbalise to these people, not to touch him as he had no feeling from his neck down. At the time of the ambulance arriving, [Mr A] stated to the officers, that he had no feeling from his neck down, for 10–15 minutes, but feeling had started to come back, the worse pain being in his right shoulder."

- Mr E stated: "After falling from his bike on 23rd March 2012, [Mr A] referred to a lack of feeling he was experiencing. This point was passed on to the ambulance personnel at the scene upon their arrival."

17. According to Mr A, Mr D also informed the ambulance crew about his transient quadriplegia. However, there is no mention of Mr A's transient quadriplegia in the completed ambulance service Patient Report Form.

18. Both ambulance crew members recall attending Mr A's accident, but neither recalls being told that Mr A had experienced transient quadriplegia:

- One stated: "To my recollection neither the patient or any witness commented on any earlier tingling or lack of sensation which would have raised concern that there was some underlying neurological deficit."

- The other stated: "Whilst information regarding deficits such as loss of feeling may well have been said, I can honestly say I have no recall of this. If I had heard this information it would have been documented accordingly."

19. At 4.41pm Mr A was transferred by ambulance to the Emergency Department (ED).

The ED

20. At 5.22pm Mr A arrived at the ED and was triaged by the triage nurse.[3] The Initial Nursing Documentation Form records details of the accident and states that Mr A "denies pins [and] needles in hands/feet but said after [the] accident he felt he couldn't move any limbs". The form also contains the heading "Risk factors for potential serious illness or injury may require higher triage category", under which the

[3] The nurse's full name is not recorded.

triage nurse circled "events preceding presentation", indicating that Mr A might require a higher triage category.

21. At approximately 5.25pm Mr A was examined by senior house officer (SHO) Dr C. The clinical notes recorded by Dr C state that Mr A was complaining of pain in his shoulder, upper back and neck, but had no numbness or pins and needles sensation in his limbs. The clinical notes also record that Mr A was experiencing tenderness on flexion of his elbow and neck, as well as on flexion of his thoracic spine (T-spine),[4] but that the power and sensation in his limbs was normal. There is no record of Mr A's transient quadriplegia. Dr C arranged X-rays of Mr A's shoulder, cervical spine (C-spine)[5] and T-spine.

22. X-ray views were taken of the C-spine, the T-spine and the left shoulder. The X-ray report states that the images of the C-spine were incomplete, with an "artefact overlying the C1 and views only showing to the level of C5 in diagnostic detail". The T-spine and shoulder X-rays were complete and showed no bone injuries.

23. At 7.40pm Dr C and the senior medical officer, Dr B, reviewed Mr A's X-rays prior to examining Mr A. The clinical notes, which Dr B stated were completed by Dr C on her behalf, record that the C-spine X-ray was visible only to C4. The notes reference the presence of osteophytes[6] on the C-spine and T-spine, signalling arthritic changes, and state that "on examination [there was] soft tissue tenderness in the inter scapular region".[7] No additional X-ray of the C-spine was taken.

24. Mr A was discharged with a prescription for analgesia (pain medication) and advised "to take regular analgesia and to come back if [the] pain worsens or does not [improve]". The clinical notes record "patient happy to go home".

Dr C

25. Dr C was working in the ED as part of the usual house officer rotation. House officers allocated to the ED rotation are those with two or more years' postgraduate experience. They attend weekly education sessions for junior medical staff. Dr C recalls Mr A being brought into the ED by the ambulance service staff on 23 March 2012. He remembers asking Mr A about the mechanism of his injury, as well as his symptoms, which he recorded in the clinical notes. He told HDC:

> "I recall it being extremely busy in the ED department. In such circumstances the usual practice is for the nurse to give me a verbal introduction to the patient, and then I would proceed to speak to the patient and examine them in person. This saves time reviewing handwritten notes, and I believe that this is what would have occurred here."

26. Dr C does not recall whether he asked Mr A specifically if he had transient weakness at the scene of the accident. He told HDC that "certainly my ordinary practice is to record relevant facts in the clinical notes if they are revealed". Dr C recalls that, at the time he saw Mr A, Mr A reported no numbness, pins and needles sensation or

[4] The T-spine is in the upper back area and is made up of 12 vertebrae, T1–T12.
[5] The C-spine is in the neck area and is made up of seven vertebrae, C1–C7.
[6] A bony projection associated with the degeneration of cartilage at joints.
[7] The upper back between the two shoulder blades.

weakness in any of his limbs. Dr C recalls reviewing the X-rays with Dr B before Mr A was discharged.

Dr B

27. Dr B was the senior doctor in attendance at the ED on 23 March 2012.

28. Dr B told HDC that she was on call on the evening of 23 March 2012 and therefore was supervising the junior doctors who were on duty that evening, including Dr C. Dr B told HDC that she remembers Mr A "because the mechanism of [his] injury was unusual".

29. Dr B recalls that, on reviewing Mr A's X-rays, she and Dr C both noted that the C-spine X-ray was incomplete and "noted that the vertebrae were only visible down to the top of C5 … The lateral cervical X-ray was incomplete, as it did not visualise the entire cervical spine down to the top of [the] T1 vertebra." She recalls that the Medical Imaging Department had obtained swimmers views[8] of the C-spine in order to try to visualise the lower C-spine, and stated that this is "common practice when the lower cervical spine cannot be visualised on the standard lateral X-ray view". The swimmers view X-rays were unable to expose anything beyond the upper portion of the C5 vertebra.

30. Dr B recalls that she went to see Mr A following her review of the X-ray images. Dr B told HDC:

> "[Mr A] described pain in his thoracic spine, in the inter-scapular region between [the] upper and mid thoracic spine. On questioning [Mr A] he denied any cervical spine pain as well as numbness/tingling or weakness in his limbs. On examination of [Mr A's] spine he did not have any mid cervical spine tenderness or pain. He was tender from his upper to mid thoracic spine. The cervical spine collar was removed completely and [Mr A] was able to rotate and flex his neck. This did not elicit any cervical spine pain or neurological symptoms in his limbs. [Mr A] had normal sensation and power in his upper and lower limbs. At this point I concluded that [Mr A] had no clinical evidence of cervical spine injury.
>
> Had [Mr A] had lower cervical spine pain or tenderness on examination I would have arranged a CT scan of his cervical spine in order to visualise his lower cervical spine."

31. Dr B stated: "I asked [Mr A] whether he had any neurological symptoms in his limbs, he denied this. I should have asked him if he had any temporary neurological symptoms at the scene and not just his present symptoms." Additionally, Dr B stated: "[H]aving read the comprehensive ambulance sheet [which did not reference transient quadriplegia] I did not think that the nursing triage note, which is normally one to two sentences long would have contained conflicting information [ie, that [Mr A] had experienced transient quadriplegia]."

[8] An X-ray view where the patient is on his or her stomach with one arm stretched above the head and the other at the side.

32. Dr B told HDC that, when discharging Mr A, she asked him to return to the ED if he developed any neurological symptoms in his arms and legs. However, this is not recorded in the clinical notes.

Subsequent treatment and surgery

33. Following his discharge from ED, Mr A experienced a number of adverse effects from the accident, including pain between his shoulder blades, altered sensation in his hands and feet, decreased movement in his limbs and poor balance. In May 2012 he was referred for a computerised tomography (CT) scan and magnetic resonance imaging (MRI). The CT scan showed a stable crush fracture at T2, and the MRI showed a pre-existing spinal stenosis[9] at C3/4 (not as a result of the accident), a disc prolapse and an acute spinal cord injury at the C3/4 level. In July 2012 Mr A had surgery on his C-spine and has undergone a considerable amount of rehabilitation.

Additional information

The ambulance service

34. The ambulance service has audited its attendance on Mr A and considers that the standard of care provided to Mr A on 23 March 2012 was within its Clinical Practice Guidelines 2011–2013 (the Guidelines).

35. The Guidelines state:

> "3.7 Cervical spine immobilisation
>
> The possibility of cervical spine injury should be considered in all patients suffering from trauma … Patients suffering from trauma as a result of a road crash (particularly if it involves roll over or ejection), or a significant fall, or pre-existing cervical spine abnormalities (such as rheumatoid arthritis) are particularly at risk.
>
> If the patient has any one of the following signs or symptoms they should have their cervical spine immobilised:
>
> a) Tenderness at the posterior midline of the cervical spine or
> b) Focal neurological deficit or
> c) Decreased level of alertness or
> d) Evidence of intoxication or
> e) Clinically apparent pain that might distract the patient from the pain of a cervical spine injury."

36. The Guidelines also state that "comprehensive documentation is always important". In addition, the ambulance service has a Documentation of Patient Care policy, which states:

> "6.2.1 The format of the information recorded
>
> 1. The entire [Patient Referral Form] must be filled out.
> 2. The format should be logical and sequential:
>
> - History (including mechanism of injury for trauma patients)

[9] Abnormal narrowing of the spinal canal.

- Relevant past history
- Examination findings including primary and secondary survey
- Treatment and response to treatment
- Pertinent negatives should be included. This requires judgement; for example 'no abdominal pain' is a pertinent negative if the primary problem is vomiting, but not if it is stroke."

37. The ambulance service told HDC that it updates the Guidelines every two years and will consider including the issue of cervical cord neuropraxia[10] within the Guidelines.

Dr B

38. Dr B told HDC that she presented Mr A's case (with no identifying information) at a surgical meeting in September 2013. The case was discussed with surgical consultants, including an orthopaedic surgeon. During that meeting, the orthopaedic surgeon advised that patients often need to be "pinned down" about transient symptoms, and that open questions do not always lead patients to offer information about transient symptoms.

The district health board

39. The district health board (the DHB) told HDC that "the Service Manager offers her sincere apologies on behalf of the ED team for their failure to meet the expected standard of assessment for [Mr A's] neck injury on the day of his accident". According to Mr A, a representative from the DHB has also called him to apologise.

40. Since the events complained of, the Orthopaedic Service has developed spinal injury guidelines (**Appendix C**) in consultation with the ED. These guidelines state that clinicians should check for "neurological deficit on examination or history of neurological symptoms at any time".

41. Additionally, the DHB told HDC that it is planning to include more frequent teaching sessions on spinal cord injuries within its house officers' teaching programme.

Opinion: Breach — Dr B

42. Dr B was the senior consultant at the ED on 23 March 2012. She was supervising Dr C and had overall responsibility for Mr A's care and management, including his discharge. Dr B made a decision to discharge Mr A without sufficient information about his condition, including his history of transient quadriplegia, and without adequate views of his cervical spine X-ray.

Missed transient quadriplegia

43. Both Dr C and Dr B missed Mr A's history of transient quadriplegia. This important piece of information had already been missed by the ambulance crew; however, the triage nurse had recorded this symptom when Mr A first presented in ED.

[10] Temporary loss of motor and sensory function due to blockage of nerve conduction.

44. Dr C was the first doctor to assess Mr A in the ED. He was working in the ED as part of the usual house officer rotation programme. Senior house officers in ED have two or more years' postgraduate experience and attend weekly education sessions for junior medical staff. As a junior medical staff member, Dr C's experience was limited.

45. Nonetheless, as noted by my independent emergency medicine specialist advisor, Dr Shameem Safih, Dr C was expected to take a thorough patient history and read the triage nurse's notes. Dr C did not obtain Mr A's history of transient quadriplegia from Mr A directly, or record that the triage nurse had noted that Mr A had felt he could not move his limbs after the accident

46. Following Dr C's examination of Mr A, he ordered X-rays of Mr A's shoulder, C-spine and T-spine, and reviewed those X-rays with Dr B. Dr B then examined Mr A, and asked him about his symptoms, including whether he had had any neurological symptoms (but not whether he had had any transient neurological symptoms).

47. As Dr B stated to HDC, she was supervising Dr C at the time Mr A was treated in the ED. Regarding supervision, *Cole's Medical Practice in New Zealand* states*:*

> "Make sure that all staff for whom you are responsible and who require supervision, including locums, less experienced colleagues, and international medical graduates who are new to practice in New Zealand are properly supervised. If you are responsible for supervising staff, you should make sure you supervise at an appropriate level taking into account the work situation and the level of competence of those being supervised."[11]

48. Additionally, I have previously stated:

> "The Code provides that every consumer has the right to services of an appropriate standard. If a specialist fails to supervise registrars and junior doctors adequately, he or she may be found in breach of the Code." [12]

49. I accept that, as Dr Safih has advised me, Dr B could expect to rely on the patient history presented to her by her junior, Dr C. Nonetheless, as Dr B acknowledged, she should have asked Mr A whether he had had any temporary neurological symptoms. Dr Safih advised me that "it would be standard practice to ask such a patient specifically for the symptoms of numbness, tingling or weakness (at any point since the injury)".

50. However, Dr Safih also advised me that "often in a busy department the consultation heavily relies upon information given by the junior doctor … [Dr B] could have asked [Mr A] for transient symptoms, but equally many specialists in a similar situation may also not".

51. Overall, I agree with Dr Safih's advice that "[t]he bottom line is [Dr B] did miss the history of transient quadriplegia". As the senior doctor supervising a senior house

[11] *Cole's Medical Practice in New Zealand* (2013), at page 26. The same paragraph appears in *Cole's Medical Practice in New Zealand* (2009), which was the current version at the time of these events.
[12] Opinion 10HDC00719, available at www.hdc.org.nz.

officer with limited experience, and as the clinician with overall responsibility for Mr A's care, I am of the view that it was Dr B's duty to ensure she had all relevant information about Mr A's condition, including whether he had experienced any transient neurological symptoms such as transient quadriplegia, before making the decision to discharge him.

Failure to obtain further images of the C-spine

52. The X-ray of Mr A's C-spine was incomplete. Dr B told HDC that, had Mr A had lower C-spine pain or tenderness on examination, she would have arranged a CT scan of his C-spine. However, Dr B made the decision to discharge Mr A despite inadequate X-ray views of his C-spine and without performing a CT scan. Dr Safih advised me:

> "One of the most important rules in the assessment of cervical (neck) spine injury is that when one obtains an x-ray the entire cervical spine down to the top of the 1st thoracic vertebra must be visualized. If one cannot see the whole cervical spine in a lateral view using a variety of manoeuvres such as the swimmers view or bilateral shoulder pull, then a CT scan is indicated in anyone with more than a low pre-test probability of injury. Complete plain x-ray imaging also requires two other views, a complete AP [anteroposterior] view and a view through the open mouth to look at the first and second cervical vertebra.
>
> [Dr B] cleared the spine on inadequate films."

53. Dr Safih also advised me that two "decision instruments" have been developed, following large studies, to aid emergency care providers in deciding whether they can clear patients of a neck injury with or without imaging. These tools, which are widely used across New Zealand, are the *NEXUS Low-Risk Clinical Screening Criteria* and the *Canadian Cervical Spine Rules*. Both are based on risk assessment.

54. As outlined by Dr Safih, both decision instruments include abnormal neurological findings as one of the criteria for imaging of the C-spine, but not do specifically include transient or current symptoms. According to the *Canadian C-Spine Rules*, any patient involved in a bicycle collision with an immovable object, such as a tree or parked car, requires imaging. As Dr Safih observed:

> "In the balance it would seem that full imaging was indicated based on either of these instruments … [Mr A] had driven his bicycle into the back of a parked vehicle and shattered his helmet. This implied significant force (mechanism of injury). He had pain in the neck and the upper thoracic spines. He had burning pain in both shoulders. He had pain on flexing the neck. …
>
> [Dr B] made an error in her decision to not complete the imaging or obtain a CT scan. Clearing the Cervical spines on inadequate films would be a fundamental error. However she says in her statement clinically she did not think [Mr A] had sustained a fracture in the cervical spine … I feel the care she provided is a moderate departure from expected standards."

Advice upon discharge

55. Dr B told HDC that she read the ambulance service's Patient Report Form for Mr A, which stated that, while Mr A had not been knocked unconscious, his cycling helmet had been destroyed. I note Dr Safih's comment that, in these circumstances, "it would have been prudent to assume [Mr A] had a minor head injury", and that he should have been offered some head injury advice upon discharge. Given that there is no evidence in the clinical record that Mr A was offered head injury advice on discharge, I agree with my expert's comment.

Conclusion

56. Dr B made a decision to discharge Mr A without sufficient information about his condition, including his history of transient quadriplegia, and without adequate views of his C-spine X-ray. Furthermore, Dr B did not provide Mr A with head injury advice on discharge. For these reasons, I consider that Dr B did not provide services to Mr A with reasonable care and skill and breached Right 4(1) of the Code.

Opinion: Adverse comment — The ambulance service

Factual finding

57. According to Mr A, he had no feeling from his neck downwards immediately following the accident, and informed the ambulance crew of this on their arrival. In addition, Mr A stated that Mr D also spoke to the ambulance officers about Mr A's initial lack of feeling following the accident. However, both members of the ambulance crew who attended Mr A state that they do not recall being told about Mr A's transient quadriplegia.

58. Mr A's account is supported by two witness statements. The two witnesses at the scene of Mr A's accident both recall that Mr A told the ambulance crew of his transient quadriplegia. A witness statement from Mr E records that Mr A's "lack of feeling … was passed on to the ambulance personnel at the scene upon their arrival", while Mr D recorded that "at the time of the ambulance arriving, [Mr A] stated to the officers, that he had no feeling from his neck down, for 10–15 minutes".

59. Having carefully considered the above information, in my view it is more likely than not that Mr A told the ambulance crew of his transient quadriplegia.

Standard of clinical care — no breach

60. When the ambulance crew arrived at the scene of Mr A's accident, they examined Mr A and immobilised his neck in a cervical collar, recording on the Patient Report Form that there was "some deformity in [the] thoracic spine where [the] spine pain [is] located". They then transported him to ED.

61. Mr Geoff Procter, my independent paramedic expert, considered that the clinical care provided to Mr A by the ambulance crew was reasonable, regardless of whether they were aware of Mr A's transient quadriplegia.

62. Mr Procter stated that "the decision on whether or not to immobilise a patient is made using a system that requires only one positive finding to immobilise, thus erring on the side of caution". According to Mr Procter:

> "Either the deformity or the spinal pain is enough evidence for the ambulance officers to immobilise [Mr A], which they have done. If both the deformity and the spinal pain had not been present, immobilisation would still have been indicated by the transient quadriplegia. Thus if [Mr A] had told the ambulance officers about his transient quadriplegia, the subsequent medical care he was provided was reasonable."

63. I accept the advice provided by Mr Procter and consider that the standard of clinical care provided to Mr A by the ambulance crew on 23 March 2012 was appropriate.

Documentation — adverse comment

64. Although the standard of clinical care provided to Mr A was appropriate, the ambulance crew did not record Mr A's transient quadriplegia. As I have said previously, "the importance of good record keeping cannot be overstated. It is the primary tool for continuity of care and it is a tool for managing patients."[13] The ambulance service's policies, including its Guidelines and Documentation of Patient Care Policy, also emphasise the importance of comprehensive documentation.

65. Had Mr A's transient quadriplegia been recorded in the ambulance crew's notes, this would have assisted clinicians in the ED. Ambulance crews are the front line of healthcare provision, and their actions, including the information they document, impact upon the subsequent care patients receive.

66. Given my finding that Mr A informed the ambulance crew of his transient quadriplegia, I am concerned that this was not recorded. In my view, the ambulance service needs to ensure that its staff are diligent in recording all relevant information about patients in accordance with its Documentation of Patient Care policy.

Opinion: Adverse comment — Dr C

Missed history of transient quadriplegia

67. Dr C was the first doctor to assess Mr A when he presented at the ED. As stated by my independent emergency medicine specialist advisor, Dr Shameem Safih, Dr C was expected to take a thorough history and read the triage nurse's notes. Dr C did not obtain Mr A's history of transient quadriplegia from Mr A directly, or record that the triage nurse had noted Mr A's transient quadriplegia.

68. Dr Safih also advised me that "often in a busy department the consultation heavily relies upon the information given by the junior doctor". I consider that Dr C should have identified Mr A's transient quadriplegia and relayed this information on to Dr B.

[13] Opinion 10HDC00610, available at www.hdc.org.nz.

Documentation

69. According to Dr B, Dr C completed the clinical notes about Mr A's examination and discharge. As noted by Dr Safih, Dr B's reasons for clearing Mr A's C-spine were not clearly documented in the clinical notes. Dr Safih stated that he "would have liked to see this [the reasons for clearing the C-spine] clearly documented, even if by the SHO [ie, Dr C] on her behalf". In addition, I note Dr Safih's comment that, while the clinical records note that Mr A was prescribed pain relief, it is unclear from the clinical records how much pain (if any) Mr A was in.

70. The importance of comprehensive clinical notes in order to ensure continuity of patient care cannot be overstated. In my view, Dr C should be mindful of ensuring that his documentation of patient notes is thorough and includes all relevant detail.

Opinion: No breach — The district health board

71. The DHB had an obligation to provide Mr A with appropriate care, and may be vicariously liable for breaches of the Code by its staff.[14] However, in reviewing Mr A's care, I do not consider that liability rests with the DHB. While I accept that the ED was busy on 23 March 2012, adequate staffing has not been raised as a concern by any of the individuals involved in Mr A's care. In addition, I have found no evidence that hospital policies or practices contributed to Dr B's individual errors of clinical judgement. I therefore do not find the DHB vicariously liable for Dr B's breach of the Code, or directly liable for any breach of the Code.

72. Nonetheless, I note that, as outlined above, there were some deficiencies in the care provided by Dr C, a senior house officer at the DHB. Given that senior house officers have limited experience, I consider it important that the DHB provide robust education and support to them, including regular training.

Recommendations

73. I recommend that the ambulance service:

- Provide a written apology to Mr A. The apology is to be sent to HDC within **one month** of the date of this report, for forwarding to Mr A.
- Use an anonymised version of this case for the wider education of volunteer and paid-employment staff regarding the importance of transient quadriplegia in the context of possible spinal injuries, and the importance of documentation, and report back to HDC within **one month** of the date of this report.
- Provide evidence to HDC that, as it advised HDC during this investigation, it has considered updating its Clinical Practice Guidelines to include the issue of cervical cord neuropraxia, within **one month** of the date of this report.

[14] Section 72 of the Health and Disability Commissioner Act 1994.

74. I recommend that Dr B provide a written apology to Mr A for her breach of the Code. The apology should be sent to HDC within **one month** of the date of this report, for forwarding to Mr A.

75. I recommend that Dr C:

- Provide a written apology to Mr A. The apology should be sent to HDC within **one month** of the date of this report, for forwarding to Mr A.

- Review his documentation in light of this report and report back on his learnings within **one month** of the date of this report.

76. I recommend that the DHB:

- Provide evidence to HDC that, as it advised HDC during the investigation, it now includes more frequent house officer teaching sessions on spinal cord trauma. This evidence is to be sent to HDC within **one month** of the date of this report.

- Arrange for all junior medical staff (including senior house officers) to undergo training on the importance of, and expectations for, clear, full and accurate medical documentation, and report back to HDC within **one month** of the date of this report.

Follow-up actions

77. - A copy of this report with details identifying the parties removed, except the experts who advised on this case, will be sent to the Medical Council of New Zealand. The Council will be advised of Dr B's name. I note that, in my provisional opinion, I recommended the Medical Council undertake a competency review in respect of Dr B. I have subsequently been advised that the Medical Council of New Zealand has undertaken a competency review in respect of Dr B as a result of my initial notification of investigation. I look forward to receiving the outcome of that review in due course.

- A copy of this report with details identifying the parties removed, except the experts who advised on this case, will be sent to the Australasian College for Emergency Medicine, and it will be advised of Dr B's name.

- A copy of this report with details identifying the parties removed, except the experts who advised on this case, will be placed on the Health and Disability Commissioner's website, www.hdc.org.nz, for educational purposes.

Appendix A — Independent expert paramedic advice

The following expert advice was obtained from Mr Geoff Procter:

"**Statement**

This statement is to confirm that have I have read, understood, agreed to and followed the guidelines for independent advisors to the Health and Disability Commissioner. Additionally I have no known conflict of interest with any of the individuals involved in the investigation.

Personal Qualifications

I currently hold a Bachelor of Health Sciences in Paramedicine, and have been a practising paramedic since 2007 […]. I currently hold an authority to practise at Intermediate Life Support level. Additionally my current role is Team Manager Operations for Blue Shift.

Instructions from the Commissioner

Below are the instructions received from the Commissioner verbatim:

'Please detail whether you consider the care provided to [Mr A] by the ambulance service was reasonable in the circumstances, and why.

As you will note, there is a conflict in the evidence regarding whether or not [Mr A] told the ambulance officers that he lost feeling from his neck downwards for approximately ten minutes immediately following the accident. In light of this conflict, please provide your advice in the alternative, ie was the care provided to [Mr A] reasonable:

1. if [Mr A] told the ambulance officers about his transient quadriplegia; and
2. if [Mr A] did not tell the ambulance officers about his transient quadriplegia

If you believe that the ambulance service did not provide an appropriate standard of care, please indicate the severity of its departure (ie whether you would view the conduct with mild, moderate or severe disapproval).

If you note any other conflicts in the evidence, please provide your advice in the alternative. For example: whether the care was appropriate if scenario (a) was correct, and whether it was appropriate if scenario (b) was correct.

Please also comment on any other aspects of the paramedic care provided to [Mr A] by the ambulance service that you consider warrant such comment.'

Facts and Assumptions

All advice I have formed has been based solely on the material provided by the Health and Disability Commissioner. I have not seen fit to source any further external input to this investigation.

As such, I have formed my advice on the assumption that all information provided is a full and accurate representation of the course of events, and the accounts of the individuals involved.

Advice and Reasoning

As requested by the Health and Disability Commissioner I have formed my advice based on two different scenarios, separated below:

1. Was the care provided to [Mr A] reasonable if [Mr A] told the ambulance officers about his transient quadriplegia?

This question must be answered in two parts. Firstly, was the medical care that [Mr A] received reasonable, given the above condition? Secondly was the documentation of this care reasonable, given the above condition?

In answer to the first question, it appears from the documentation of the patient report form that the ambulance officers in question have provided reasonable medical care to [Mr A], regardless of whether [Mr A] told the ambulance officers about the transient quadriplegia.

The decision on whether or not to immobilise a patient is made using a system that requires only one positive finding to immobilise, thus erring on the side of caution. This system is detailed in [the ambulance service's] Clinical Practice Guidelines on page 72, and is attached. The patient report notes that there was 'some deformity in thoracic spine where spine pain located'. Either the deformity or the spinal pain is enough evidence for the ambulance officers to immobilise the patient, which they have done. If both the deformity and the spinal pain had not been present, immobilisation would have still been indicated by the transient quadriplegia. Thus if [Mr A] had told the ambulance officers about his transient quadriplegia, the subsequent medical care he was provided was reasonable.

In answer to the second question, it is clear that there is no documentation of the transient quadriplegia. If [Mr A], or for that matter any bystander, had mentioned the transient quadriplegia to the ambulance officers, it would be inappropriate to not include this information on the patient report form. Thus if [Mr A] had told the ambulance officers about his transient quadriplegia, the subsequent documentation of the event was substandard, and therefore not reasonable.

If this was the case, this would be of mild severity. Although documentation can often be a useful tool for subsequent health care providers in deciding what care is the most appropriate, [Mr A] was still alert and orientated and thus could still provide this information himself if necessary.

2. Was the care provided to [Mr A] reasonable if [Mr A] did not tell the ambulance officers about his transient quadriplegia?

If [Mr A] did not tell the ambulance officers about his transient quadriplegia it is clear that the standard of physical medical care and the documentation of this care is reasonable, and of standard.

The ambulance officers have correctly identified abnormalities in [Mr A's] condition in that he has a physical deformity, and spinal pain, and have subsequently immobilised [Mr A], and documented this fully. Thus, if [Mr A] did not tell the ambulance officers about his transient quadriplegia, the care provided to him was reasonable.

Literature and Materials Used

The majority of literature and materials relied on are restricted to the documentation provided by the Health and Disability Commissioner. These materials were sufficient in this case to form advice on the reasonableness of the ambulance officers' care of [Mr A].

The only additional material relied on are [the ambulance service's] Clinical Practice Guidelines, specifically the section relating to Cervical Spinal Immobilisation (page 72), which are attached to this report. These guidelines state that a patient's spine should be immobilised if they meet any one of the following criteria:

- Tenderness at the posterior midline of the cervical spine or
- Focal neurological deficit or
- Decreased level of alertness or
- Evidence of intoxication or
- Clinically apparent pain that might distract the patient from the pain of a cervical spine injury.

Examinations, Tests and Investigations Relied On

There were no further examinations, tests or investigations relied on or necessary for my advice on this investigation."

Appendix B — Independent expert emergency specialist advice

The following expert advice was obtained from Dr Shameen Safih:

"17th February 2014

Re Case Number 12/01019 : [Mr A]

My name is Shameem Safih

I am a Fellow of the Australasian College of Emergency Medicine and have been practising as a Specialist for 16 years.

I have worked in various large and small hospitals in NZ and Australia. Currently I work in a large tertiary referral hospital and oversee three much smaller rural satellite hospitals.

I have been asked by the HDC to provide an opinion on case number 12/01019: [Mr A]

I have read and agree to follow the Commissioner's Guidelines for independent advisors.

In particular the specific issues the Commissioner asked me to comment on are

1. Whether [the district health board] provided [Mr A] care of an appropriate standard in March 2012
2. Whether [Dr B] provided [Mr A] services of an appropriate standard following his bicycle accident in 2012

I have read the following documents

1. Letter of complaint from [Mrs A]
2. Ambulance record
3. Initial nursing documentation form
4. Notes made by the nurse
5. Notes made by the SHO [Dr C]
6. Statement of [Dr B] FCEM, FACEM, Consultant Emergency Physician, [the public hospital]
7. Letter from [Dr C]
8. Response letter to HDC from the Operations manager, [the DHB]
9. Radiologists report on the initial images

Complaint letter written by [Mrs A]

On the 23rd of March last 2012 [Mr A] rode his bicycle into the back of a stationary van. He fell heavily to the ground. His helmet shattered with the impact. Immediately after the fall he was unable to feel his arms and legs or move any limb. He asked people present at the scene not to move him because of this. However by the time ambulance arrived 10 minutes later his movement and sensation had returned.

[Mr A] was evaluated at [the] ED. He had pain between his shoulder blades in the upper back, and pain in the neck on flexing the neck, and pain in both shoulders. He was discharged 2 hours later after a set of x-rays and a review by the SHO and the ED Consultant. (Note, according to times entered [Mr A] was in ED for 3 hours.) Ongoing neurological symptoms after discharge led to further imaging weeks later and the discovery of a fracture of the 2nd thoracic vertebrae, and two prolapsed discs in the neck.

Ambulance Notes

According to their documentation the ambulance was dispatched at 1614 and arrived at the scene at 1618. The ambulance crew spent 23 minutes at the scene, departing at 1641, and arriving at [the hospital] at 1722.

The mechanism of injury was ambiguously worded in the ambulance officers' documentation: [Mr A] was cycling behind van travelling at 20kph (referring to [Mr A's] speed) and collided with the rear of vehicle.

They note that [Mr A] did not lose consciousness, but that his cycling helmet was destroyed.

They noted that he was found lying on his back complaining of pain in the back and both shoulders, pain being described as burning pain. (*Comment: The burning nature of the pain in both shoulders might raise suspicion of pain arising from cervical cord or nerve root injury, a subtle but possible early clue.*)

They noted [Mr A] was alert and conversing freely. They noted some deformity in the thoracic spine. (This is noted subsequently by the SHO but never clarified further, and might have been a haematoma.)

They also noted '**No neurological deficit, good motor/sensory function in both limbs**'.

They applied a cervical collar (as is routine), did baseline observations, administered paracetamol and transported [Mr A] to hospital.

Significantly, they did not make note of any complaint of [Mr A] not being able to move both arms and legs for several minutes immediately after the accident.

Emergency department personnel often rely on ambulance staff for accurate pre-hospital information, and to not record the fact that [Mr A] had been transiently unable to feel or move his limbs is a significant omission. When in an acute situation on the roadside when there is imminent threat to life, when the patient has an altered level of consciousness or when there are multiple patients it is understandable if a sketchy history is obtained. However, in this instance [Mr A] was alert, there were no immediate pressures and he apparently told the ambulance staff the key clue regarding his inability to feel or move his limbs temporarily after the crash.

Nursing Notes: [the] ED

[Mr A] was triaged at 1715 and placed in the resus room for assessment.

In her documentation the triage nurse noted the symptoms of back and shoulder pain, the mechanism of injury, and queried about the presence of deformity of the thoracic spine. This last comment or query is probably a direct transcript of the ambulance report. The nurse recorded that there were no pins and needles in the hands and feet — but also recorded that [Mr A] '*said after accident he felt he couldn't move any limbs'*.

There is further nursing entry at 1730: 'complains of severe pain in upper arms, especially left arm'.

SHO Notes — [Dr C]

[Mr A] was seen by SHO [Dr C] at 1726.

He noted the mechanism of injury and the complaint of pain in the right shoulder and in the upper back and neck. He noted that there was no (current) complaint of numbness or pins and needles in the limbs, and that there was no headache, no vomiting and no nausea, and that there had been no loss of consciousness.

He conducted an examination which included correctly a log roll (rolling a patient with potential spinal injuries over with the assistance of 3 other people in order not to exacerbate any possible or potential spinal injury) and examination of the back. He documented finding no tenderness on palpating the cervical (neck) spine but found that flexing the neck caused pain (*this implies the possibility of acute neck injury from a minor sprain or strain of muscles and ligaments through to something more serious such as skeletal or spinal injury).* He specifically noted that power and sensation were normal in upper and the lower limbs, although he does not give details of what tests he did. He found tenderness of the thoracic spine between the shoulder blades. He found tenderness on flexion of the elbow (he does not note which elbow).

His working diagnosis was just a statement of 'RTA (road traffic accident) injury' which does not sum up what injuries he suspected. Nevertheless he obtained x-rays of the cervical (neck) and thoracic (back) spine and the left shoulder.

At 1940 he discussed [Mr A] with the supervising emergency consultant. He notes that [Dr B] reviewed [Mr A] and saw the x-rays. He noted that there was no fracture seen but the cervical (neck) spine was only visualized up to C4, and arthritic (wear and tear) changes were visible in both the cervical and the thoracic spine.

He notes that on examination (by [Dr B] presumably) there was soft tissue tenderness in the inter-scapular region.

He then discharged [Mr A] with some analgesia and advised him to come back if the pain worsened or did not improve.

SHO's letter

In his letter of 18th July 2013 [Dr C] cannot recall asking [Mr A] whether he had any transient neurological symptoms. He therefore did not have this information to pass on to [Dr B].

Response from the supervising consultant [Dr B]

At the time of this consultation [Dr B] was a consultant Emergency Physician in the ED.

She was asked by ED SHO [Dr C] to review [Mr A] as the supervising consultant. She recalls her interaction with [Mr A]. She recalls asking for (current) neurological symptoms and being told by [Mr A] there weren't any.

It would be standard practice to ask such a patient specifically for the symptoms of numbness, tingling or weakness (at any point since the injury). Burning pain (hyperalgesia or nerve hypersensitivity) is a symptom suggesting neurological injury as well. She admits not asking the patient whether he had any *passing* neurological symptoms, nor being told of it. Some but perhaps not all experienced practitioners would ask this question, in this specific manner. It is something patients usually report voluntarily as it is a frightening event. [Dr B] did not find this documented in the ambulance notes. She did not look at the triage nurse's notes. This is because quite often in a busy department the consultation heavily relies upon the information given by the junior doctor.

She examined the neck x-rays and was aware that they were inadequate to rule out cervical spine injury, and there were arthritic changes in what was shown of the cervical vertebrae.

She found no tenderness in the neck and no weakness or altered sensation at the time of examination.

She chose not to image the neck any further.

This was a critical decision.

But she had missed the history of the transient loss of function in the limbs.

[The DHB's] Response

In their response they acknowledge that the x-ray was incomplete.

They say that the junior doctor found no tenderness in the neck, found no neurological symptoms and only found tenderness in the upper back.

They imply that x-ray of the cervical (neck) spine may not have been indicated in the first place.

They acknowledge the history of passing loss of function in the limbs had not been elicited other than at triage.

The radiologist's report noted incomplete images and arthritis on the plain films but no bony injury in what they saw.

The Clinical Director of the ED correctly stated that plain x-rays even if complete may not have been useful other than to rule out bony injury in the cervical spine. The prolapsed discs and any soft tissue or spinal cord injury that became apparent later would not have been seen on plain x-rays.

Comments

Emergency Physicians are commonly challenged with accurately diagnosing cervical spine trauma. Controversy exists regarding the most efficient and effective method. There is a wide spectrum of clinical presentation, from trivial trauma to significant catastrophic and life threatening trauma. The decision to image cervical (neck) spines or not is a critical one.

Assessment of injury is confounded by multiple variables and fraught with pitfalls. These include mechanism of injury, pre-existing cervical spine condition, age of the patient, psychological state of the patient, level of consciousness (drugs, head injury), and distraction from the neck injury by other more painful injury. Complete plain x-ray films are often difficult to obtain because of body habitus (they can be challenging in heavy (muscular or overweight) patients). Up to 72% of plain films may be inadequate. Plain x-ray films even when complete may miss up to 5 to 10% of bony injury. Many physicians for this reason will do CT scan as the investigation of choice; however this is expensive, time consuming and involves a not insignificant dose of radiation to the thyroid and other tissues with the risk of subsequent cancer. Therefore CT scan would not be done on every patient with a suspicion of neck injury.

The hazards of assessing and imaging the cervical spine are therefore twofold. One can underestimate the injury and not image. On the other hand one can be detrimentally over cautious and image unnecessarily.

One of the most important rules in the assessment of cervical (neck) spine injury is that when one obtains an x-ray **the entire cervical spine down to the top of the 1st thoracic vertebra must be visualized**. If one cannot see the whole cervical spine in a lateral view using a variety of manoeuvres such as the swimmers view or bilateral shoulder pull, then a CT scan is indicated in anyone with more than a low pre-test probability of injury. Complete plain x-ray imaging also requires two other views, a complete AP view and a view through the open mouth to look at the first and second cervical vertebra.

[Dr B] cleared the spine on inadequate films.

In this instance [Dr B] had not seen [Mr A] till after the x-ray, and found no tenderness in the neck and no weakness or altered sensation at the time of examination. [Mr A] was able to move his neck. [Dr B] was acting on the

information (or lack of) given by the SHO. She did not read the triage nurse's notes.

[Dr B] chose not to investigate further because (she implies) she believed there had not been the indication for cervical spine x-rays (possibly in the first place) on her examination findings.

There are two decision instruments that have been derived after large studies to aid emergency care providers deciding on whether they can clear patients of a neck injury with or without imaging and are commonly used: the NEXUS and the Canadian Cervical Spine rules. Both are based on risk assessment.

The NEXUS Low Risk Criteria were derived after a study of 34069 patients across 21 trauma centers. The rule essentially says radiography is not necessary if these five criteria are met in patients over two years of age:

Absence of posterior mid-cervical tenderness

Normal level of alertness

No evidence of intoxication

No abnormal neurological findings

No painful distracting injuries

If the patient does not meet any one of the above five criteria then the cervical spine should be imaged.

The Canadian Cervical Spine decision instrument includes mechanism of injury.

It applies to children over 16 and those patients fully conscious, alert and oriented.

High risk and low risk criteria are evaluated.

A. High Risk Criterion: All theses patients need imaging of the cervical spine

1. *Age >65*
2. *Fall > 1 metre*
3. *Injury with axial load to head*
4. *High speed MVC (> 100 kph)*
5. *Motorized recreational vehicle injury*
6. *Ejection from vehicle*
7. *Bicycle collision with immovable object such as tree or parked car*
8. *Extremity paraesthesias*

Low risk criteria: If the patient does not have any of the above criteria then he is assessed for the presence of the following

1. *Simple rear end MVC*

2. *Patient sitting up in ED*
3. *Patient ambulatory anytime after accident*
4. *Delayed onset of neck pain*
5. *Absence of midline cervical spine tenderness*

If the patient does not have any of the low risk criteria, they must be imaged

If the patient has any of the low risk criteria, the next step is to ask them to actively rotate their neck 45 degrees to each side.

If they can do this, regardless of pain, they do not require imaging.

Both decision instruments have abnormal neurological findings as part of the criteria but do not specifically state transient or current symptoms. In the balance it would seem that full imaging was indicated based on either of these instruments.

[Mr A] had driven his bicycle into the back of a parked vehicle and shattered his helmet. This implied significant force (mechanism of injury). He had pain in the neck and the upper thoracic spines. He had burning pain in both shoulders. He had pain on flexing the neck.

But he also had **transient quadriplegia**.

The ambulance staff, [Dr C] and [Dr B] had all missed this vital clue. [Mr A] had tried to tell two people of his concern, namely the ambulance staff who did not record or report this component of the history, and the triage nurse, who did.

Transient quadriplegia is a distinct clinical entity in the syndrome of neuropraxia of the spinal cord. It occurs in the background of some cervical spine abnormality such as osteoarthritis, cervical spinal stenosis (narrowing of the cervical spine canal), degenerative disc disease or congenital abnormality. The sensory changes include burning pain, numbness, tingling and loss of sensation. Motor changes can range from weakness to paralysis. Complete recovery usually occurs within 10 to 15 minutes (sometimes can take up to a couple of days).

Pain in the neck is not present and there is complete return of motor function and full, pain free motion of the cervical spine. (Ref: Neuropraxia of the cervical Spinal cord with transient quadriplegia, Torg et al, Journal of Bone and Joint Surgery 1986 Dec 01, 68(9):1354–1370.)

Had [Dr B] been aware of the transient quadriplegia it is to be expected that she would have obtained further and complete plain radiological imaging and failing that, would have asked for a CT scan. The best way to investigate this injury is with an MRI which is not easily available to EPs, and in NZ in many places a consultation is required with the radiologist and the orthopaedic surgeon. The timing of the MRI after full recovery of neurological function is also debatable. It need not happen urgently after hours but should happen soon. The Emergency

Physician should discuss such a case with the orthopaedic consultant regardless of findings of plain x-ray or CT.

Two other comments are relevant to this case:

1. X-ray of the thoracic spines.

Plain films have a high miss rate for injury in the upper thoracic (upper back) spines (specifically T1–3). In my experience plain films of this area are difficult to interpret and strong suspicion of injury (as in significant pain and/or neurology) should prompt CT imaging.

[Mr A] was provided a lot of pain relief but I am unable to ascertain from the notes in how much pain he was, either during his stay or at the time of discharge. It is mentioned that he was: 'happy to go home'.

2. In the accident his helmet had been destroyed. This represents delivery of a significant force to the cranial region. Although he was not knocked out it would have been prudent to assume he had a minor head injury and he should have had some head injury advice provided upon discharge.

Summary

[Mr A] rode his bicycle into the back of a parked van.

His cycling helmet was destroyed with the impact.

He suffered transient quadriplegia and an injury to his upper thoracic spinal area.

His neurological signs and symptoms lasted 10 minutes.

The ambulance officers did not record or report the neurological episode.

The SHO did not elicit this in the history.

The triage nurse had recorded this but no-one noted this subsequently.

The SHO obtained x-rays of the Cervical and Thoracic spines.

X-rays of the C spine were inadequate.

The SHO consulted with his supervisor, [Dr B].

She accepted the history as she was given.

The department was busy at the time.

She reviewed [Mr A] and found no neurological deficit, found that there was no midline tenderness and that [Mr A] could move his neck.

She made the decision to not obtain full x-rays.

Subsequently [Mr A] suffered return of neurological symptoms and had a diagnosis of prolapsed intervertebral discs made.

Opinion

An error was made in the diagnosis of [Mr A's] Cervical Spine injury.

1. In answer to the first question, [the DHB] provided the resources that would be required to assess and manage [Mr A]. I do not have the information to say whether there was sufficient staffing to meet the workload at the time. I cannot comment on whether there were any human factors (such as fatigue or distraction by other competing demands of a busy shift with sick people) to influence the decision.

The House Officer made an error in that he did not elicit the history of the transient loss of sensation and power in the limb nor did he read the triage nurse's note. The comprehensive ambulance notes made no mention of the transient loss of function in the limbs. Thus when he presented [Mr A] to the consultant he did not have the complete history. Although he is junior he is expected to take a good history and as the first doctor seeing the patient he must also read the triage nurse's note. This represents a moderate departure from expected standard.

2. [Dr B] acted on information given by the SHO on a busy shift. She could have asked [Mr A] for transient symptoms, but equally many specialists in a similar situation may also not. She made an error in her decision to not complete the imaging or obtain a CT scan. Clearing the Cervical spines on inadequate films would be a fundamental error. However she says in her statement clinically she did not think [Mr A] had sustained a fracture in the cervical spine. I assume she is implying that there was no midline tenderness, no significant pain, and [Mr A] could actively rotate his neck to 45 degrees to each side. I would have liked to see this clearly documented, even if by the SHO on her behalf. The bottom line is she did miss the history of the transient quadriplegia. I feel the care she provided is a moderate departure from expected standard.

Dr M S Safih

FACEM"

Appendix C — The district health board's spinal injury guidelines