

Scottish Parliament Region: South of Scotland

Case 201100366: Ayrshire and Arran NHS Board

Summary of Investigation

Category

Health: Hospital; accident and emergency; clinical treatment; diagnosis

Overview

The complainant (Mrs C) complained against Ayrshire and Arran NHS Board (the Board) regarding the care and treatment her husband (Mr A) received from Ayr Hospital (the Hospital), following his collapse on a public transport bus. Mr A subsequently became completely tetraplegic within a short period of time after he arrived at the Hospital.

Specific complaint and conclusion

The complaint which has been investigated is that following Mr A's admission to the Hospital on 15 January 2010 there were unacceptable delays in his diagnosis and treatment (*upheld*).

Redress and recommendations

The Ombudsman recommends that the Board:	Completion date
(i) ensure that measures are taken to feedback the learning from this event to all Accident and Emergency staff to ensure that similar situations will not recur;	19 December 2012
(ii) conduct a Significant Event Review of this case with an emphasis given to the misinterpretation the radiologist gave to the findings of the scan of 18 January 2010;	19 December 2012
(iii) ensure that all Accident and Emergency staff are familiar with and adhere to Nursing and Midwifery Council Guidelines on record-keeping;	21 November 2012
(iv) ensure that all Accident and Emergency staff are familiar with and adhere to Scottish Intercollegiate Guidelines Network Guidance on suspected head / neck injury;	21 November 2012

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| (v) review the procedure the Hospital follows should MRI scanning outside normal hours (08:00 – 17:00) and at weekends be urgently required; | 19 December 2012 |
| (vi) review the procedure for imaging to include image appraisal and the quality of films; | 21 November 2012 |
| (vii) review the provision and availability of collars; and | 21 November 2012 |
| (viii) apologise to Mrs C for the failures identified in this report. | 21 November 2012 |

Main Investigation Report

Introduction

1. On 3 May 2011 the Ombudsman received a complaint from Mrs C about the care and treatment her husband (Mr A) received from Ayr Hospital (the Hospital) following his admission to the Accident and Emergency Unit (A&E) at the Hospital on 15 January 2010.

2. Mrs C stated that Mr A had suffered a fall on a bus and had struck his face when he fell and lost consciousness. She stated that he arrived at the Hospital around 15:20.

3. Mrs C said when she arrived at the Hospital around 17:45, Mr A was sitting on a trolley without a neck collar. She stated that Mr A displayed facial and head injuries - 'his face was a mess, bruised and bloodied' - and he complained of a variety of symptoms which included loss of power in his right arm and leg and pins and needles. Mrs C stated that when she phoned the Hospital at 23:00 Mr A had still not been seen by the receiving doctor.

4. Mrs C told us that she understood that Mr A was seen shortly after 23:00 and Mr A's head was then immobilised with sand bags, as the hard collar they had for Mr A was too small for his neck.

5. On 19 January 2010 Mr A was subsequently transferred to Queen Elizabeth National Spinal Injuries Unit where he was diagnosed as having complete tetraplegia.

6. Mrs C complained to Ayrshire and Arran NHS Board (the Board) on 7 October 2010 and they replied on 25 January 2011.

7. The complaint from Mrs C which I have investigated is that following Mr A's admission to the Hospital on 15 January 2010 there were unacceptable delays in his diagnosis and treatment.

Investigation

8. As part of the investigation, my complaints reviewer obtained copies of Mr A's clinical records (the Records) and the complaints correspondence from the Board. Advice was sought from four independent medical advisers: an A&E Consultant (Adviser 1); a Senior Nurse in an Emergency Department /

Emergency Department Manager (Adviser 2); a Consultant Spinal Surgeon (Adviser 3) and a Consultant Musculoskeletal Radiologist with special interest in spinal trauma (Adviser 4).

9. I have not included in this report every detail investigated but I am satisfied that no matter of significance has been overlooked. Mrs C and the Board were given an opportunity to comment on a draft of this report.

Complaint: Following Mr A's admission to the Hospital on 15 January 2010 there were unacceptable delays in his diagnosis and treatment

10. Mrs C stated that on 15 January 2010 Mr A had a fall on a bus, striking his face when he fell and he lost consciousness. She said that when she arrived at A&E Mr A's face was a mess. She stated, 'he had clearly suffered a significant blow'. She stated he had pins and needles in his shoulders, a sore neck and weakness down his right side.

11. Mrs C said that clinicians knew Mr A had not suffered a stroke as Mr A had a scan at 17:17 and she and Mr A were told by staff he had not had a stroke.

12. Mrs C stated that Mr A was sitting around until he was seen at approximately 23:00. Furthermore, his neck was not immobilised with sandbags until after 23:00.

13. Mrs C stated that Mr A was not given an Magnetic Resonance Imaging (MRI) scan until 19 January 2010. She stated that delays in Mr A's diagnosis and treatment at the Hospital should not have occurred and the delays have not been properly explained to her. For example, Mrs C wished to know what the nature and outcome of the investigations carried out on Mr A were once a stroke was ruled out; why Mr A was not medically reviewed from 18:00 until after 23:00; and why he was not immobilised until after 23:00.

14. In the Board's response to Mrs C's complaint, the Nurse Director (the Director) stated that Mr A was brought to A&E on a public transport bus; was retrieved from the bus by experienced A&E personnel and transferred directly into the A&E Resuscitation Room for further assessment and examination by an experienced middle grade doctor who was immediately available. Arrival time was registered at 15:21 and the Director stated this was probably a few minutes after Mr A actually arrived in the Resuscitation Room.

15. The Director said that before Mr A was moved from the bus, A&E staff obtained an eye witness history account of the incident and it appeared that Mr A had experienced a collapse rather than a traumatic injury. She stated:

'Mr A was noted to have evidence of tongue biting, urinary incontinence, and a reduced level of consciousness (Glasgow Coma Scale [GCS] score of 11/15). There was a superficial abrasion to the right side of his forehead and face.'

16. The Director said that in a very short time, Mr A's GCS score had improved although he had no recollection of events that led to the collapse and:

'He denied being in pain and specifically denied neck pain. He gave a history of having consumed some alcohol that morning. His other vital signs were unremarkable.'

17. The Director also stated that following a physical examination, no cervical spine tenderness was noted and there was nothing in Mr A's presentation to suggest the possibility of a cervical spine injury, or the need to protect or immobilise the neck. She said that Mr A was noted to have a right sided weakness, with some slight evidence of weakness to the left side also. She stated that assessment was complicated by the fact that Mr A had consumed an unknown quantity of alcohol and said, 'The clinical picture at this stage was thought to point either to a stroke or a seizure and its aftermath'. The Director stated that after further checks on Mr A's clinical state, his level of consciousness was thought to have come back to normal, however, he was noted to have persisting right sided weakness. Mr A's presentation was discussed with the Duty Consultant and it was thought prudent to have a Computed Tomography (CT) brain scan carried out to exclude any condition which required neurosurgery. The Director stated that as no acute lesion was identified (apart from bruising to his scalp), Mr A was referred to the receiving medical team and due to the provisional diagnosis, and he was transferred to an acute stroke ward at approximately 18:50.

18. The Director said that on 15 January 2010 the A&E receiving team were very busy and stated that 'inevitably there were assessment backlogs in the acute medical assessment unit, requiring the doctors to prioritise their workload'.

19. The Director acknowledged that Mr A was not clinically assessed or his 'clerk-in' completed until after 23:00 (see paragraphs 3 and 12). It was during this examination of Mr A that cervical spine tenderness was first reported. She stated that this was immediately discussed with the Duty Consultant Physician and A&E were asked to provide advice on precautionary neck immobilisation and assistance to 'log roll' Mr A for transfer to the Imaging Department for a cervical spine x-ray examination. She added that, unfortunately, '[Mr A]'s collar size made it impossible to fit a stiff collar and for this reason sandbags had to be used to immobilise his neck'. The resulting image was interpreted as possibly showing a fracture. This required continued immobilisation pending specialist advice from the Orthopaedic Team and further CT scan images of the cervical spine.

20. The Director stated that the Duty Consultant Physician reviewed Mr A after the CT scan results became available on the afternoon of 16 January 2010. He also discussed these with the on call Orthopaedic Consultant and with a Consultant at the Spinal Injuries Unit. She stated that it was thought at that time the most likely diagnosis was felt to be a spinal cord lesion due to trauma and arthritic changes, however, a definitive diagnosis required an MRI scan. The Director stated that as the neurosurgeons were not proposing any surgical intervention, they were happy to wait for the results of the MRI scan before arranging Mr A's transfer. She stated that an MRI scan would not have been available at the Southern General Hospital over the weekend either. This hospital is in Glasgow, outside the Board's area. It is a tertiary neurosurgery and spinal injuries centre.

21. The Director concluded the events of 15 January 2010 by stating that Mr A was appropriately assessed and diagnosed, given his presentation at the Hospital. She said that this was an evolving condition and it was only with the passing of time it became evident that Mr A's symptoms were more in keeping with cervical cord lesion. She stated that in Mr A's case the delayed diagnosis was not a factor in the final tragic outcome which resulted in his severe disability.

22. Adviser 1 (whose comments were focussed on A&E management) addressed Mr A's condition and management in A&E on 15 January 2010. He noted from the Records that Mr A, then aged 67, was reviewed by a triage / assessment nurse (the Triage Nurse) at 15:15 and seen by an A&E doctor (the Doctor) at 15:20. He stated that given the usual difference in documenting

precise timing of events, it appeared that Mr A had arrived at this time and was seen quickly by the Doctor and Triage Nurse for initial assessment. Adviser 1 noted that the Triage Nurse documented that an electrocardiograph (ECG) was undertaken, x-rays performed, an intravenous cannula inserted and blood tests taken. Mr A's initial history and examination findings were taken, which included 'collapsed on bus' and that it had been a 'difficult extraction from bus'. The Doctor had also recorded 'collapsed on bus' and included eye witness accounts such as: 'eye witness stated [Mr A] got up from seat ... fell forwards ... loc [loss of consciousness]'.

23. Adviser 1 stated it was documented that Mr A 'denies any pain' and had 'consumed alcohol in a.m.' Adviser 1 noted entries in the Records related to blood pressure, oxygen levels, pupil reflexes, and that Mr A's breath had an aroma of alcohol. He stated there was no cervical spine tenderness or facial bone tenderness recorded, however, it was documented there was evidence of laceration to Mr A's tongue.

24. Other examinations recorded as normal included respiratory, cardiovascular, abdomen and bowel. Adviser 1 noted the results of a neurological examination which recorded the limbs as showing reduced power. At this point Mr A's care was documented as being discussed with the Consultant in A&E.

25. Adviser 1 noted at 17:10 that the limb weakness was still present, however, it was worse on the right side than the left side. The results of the scan were written down at 17:50 as showing a 'subgaleal [outside the skull] haematoma involving [the right] frontal region superiorly' but with no fracture. However, he stated that documentation of any neck imaging, for example x-rays, was not undertaken as he would have expected in A&E.

26. Adviser 1 stated that ward nursing notes appear to have been commenced at 19:00 and that an admission medical, 'clerking proforma for stroke patients', was started at 23:10. Adviser 1 also stated that in these notes (untimed) x-ray images were interpreted as fracture of the fourth cervical vertebra in the neck, but it was also noted that the images were 'very poor films'. However, there was an area of abnormality noted and so the neck was immobilised. In addition, it was recorded that it was not possible to find a collar to fit Mr A.

27. Adviser 1 stated that Mr A's initial presentation was not typical of a single condition. He said it was not definitively clear, for example, that Mr A had a seizure first and then collapsed, or had a collapse and then developed problems. He stated this is a common 'unknown' in A&E practice. However, in Mr A's case, Adviser 1 said there was some evidence perhaps of having had a seizure (tongue bitten, incontinence, reduced GCS) or having had a fall and then injured his head (face/forehead abrasion, reduced GCS) or a combination of both. He stated that from the evidence of the eye witness (see paragraph 15), the latter scenario was perhaps the most likely, however, this was not certain. Either way standard management for this scenario was to assess Mr A (as was indicated to occur), while also stabilising the neck if thought appropriate.

28. In this regard Adviser 1 gave two important reasons for caution, which would have been clear to an experienced doctor (and perhaps less clear to a junior or inexperienced doctor). Firstly, if Mr A had apparently been drinking that was well recognised to make assessment more difficult. Secondly, there was evidence of weakness of the limbs bilaterally (acute strokes are more commonly one-sided than both). Adviser 1 stated that together these two issues should have alerted the A&E staff to being very cautious with the assessment of Mr A and to ensure that acute neck injury was not excluded (Scottish Intercollegiate Guidelines Network (SIGN) guidance for 'Early management of patients with a head injury', guideline 110 refers). In addition, while the differential diagnosis included stroke initially, it was very important to prevent other conditions potentially present from getting worse, such as by stabilising Mr A's neck.

29. Adviser 1 outlined several guidelines for the management of potential neck injuries, for example: SIGN guidance for Early Management of Patients with a Head Injury, Guideline 110, which includes a section on neck injuries; the NEXUS and Canadian Cervical Spine Decision Rules; and the British Orthopaedic Spinal Clearance in the Trauma Patient Guidance. He stated that such guidance indicates that neck injury needs to be suspected in the setting of a possible head injury or a trauma / fall. In a setting of a patient with abrasions on the face/ forehead and a reduced conscious level, head and thus neck injury both need to be suspected.

30. In Adviser 1's view it was clear from the Records that neck injury had been suspected as it was written down there was no pain or tenderness of the neck –

an indication that it had been looked for and apparently ruled out by local examination of the neck (see paragraphs 16 and 17). However, Adviser 1 stated that this lack of pain and neck tenderness, perhaps relieved by alcohol, was false reassurance particularly for a junior doctor. He added that the presence of limb weakness was a very clear focal neurological sign and very much suggested a significant injury of the neurological system either in the head, neck or peripherally. The Adviser stated, 'Thus with this focal sign apparent and documented, neck immobilisation was required prior to further assessment and imaging'. He said that there was no reason why immobilisation did not happen and even if a collar was not available, other immobilisation methods could have been used.

31. Adviser 1 stated that imaging (often by x-rays first) was indicated and should have been undertaken and checked before any immobilisation was removed. He stated that because the results of any neck imaging were not documented in the A&E notes, it was not obvious that these images were appraised by A&E medical staff at that time. The Adviser stated that the ward doctor commented that the x-ray images of the neck were 'very poor films' and that indicated neck injury had been thought of as a possible diagnosis because neck x-rays were performed.

32. Adviser 1 reasoned and concluded that a head and neck scan were required at this time. He also reasoned that Mr A's symptoms and signs made a full and careful reassessment necessary and this could have been undertaken by A&E staff or a speciality team. He stated:

'this reassessment of [Mr A] may then have identified the worsening clinical picture that was apparently present by the time the ward doctor saw [Mr A] at 23:10. Reasons for the delay in reassessment of [Mr A] were not clear from the A&E notes.'

33. Adviser 1 stated that x-rays, two ECGs, blood tests and a head CT scan were documented as undertaken in A&E. As Mr A was not documented as being reassessed after the head scan, it was not clear whether stroke was formally ruled out in A&E. He stated that it was unclear from the Records why Mr A was not medically reviewed / reassessed on 15 January 2010 from 18:00 until after 23:00. The Adviser also stated that no reason was documented why Mr A's neck was not immobilised in A&E, despite the fact that a neck injury had not been definitively excluded: 'neck immobilisation should have occurred until neck injury had been safely excluded clinically and by relevant imaging'. He

said that a correct diagnosis was not made in A&E as sufficient imaging had not been undertaken.

34. Adviser 2 addressed Mr A's condition and nursing management in A&E on 15 January 2010. He confirmed Adviser 1's review timeline as recorded by the Triage Nurse and the Doctor. He also confirmed the nursing notes up to the time Mr A's neck was immobilised after 23:10. Adviser 2 additionally commented that Mr A's presentation at A&E was not typical, as in many circumstances an ambulance would have been called by the driver of the vehicle and a patient would have been transported to A&E by that method.

35. Adviser 2 quoted from SIGN guidance for 'Early management of patients with a head injury, Guideline 110' that:

'Patients who have sustained a head injury and present with any of the following risk factors should have full cervical immobilisation attempted unless other factors prevent this:

- GCS less than 15 on initial assessment by the healthcare professional;
- Neck pain or tenderness;
- Focal neurological deficit;
- Paraesthesia in the extremities;
- Any other clinical suspicion of cervical spine injury.'

36. Adviser 2 stated that the initial assessment of Mr A was not well documented from a nursing perspective as the notes were brief and relied heavily on the medical notes. For example, there was no documentation with respect to the assessment and examination which took place prior to movement of Mr A, nor were there any notes to suggest what equipment (if any) was used to aid in the extraction of Mr A from the bus. He stated that some notes were limited and untimed. Furthermore, statements provided by nursing staff in November 2010 taken some ten months after the accident, provided little clarity into the initial assessment of Mr A outside A&E, or support the initial assessment of the doctor regarding the issue of neck pain, with staff stating they could not recall if Mr A had complained about this.

37. Adviser 2 stated that he could find little evidence that the nursing records relating to the A&E assessment accorded with the Nursing and Midwifery Council Guidelines (NMG) for nursing staff on record-keeping.

38. Adviser 3 stated that the photocopied Records (especially those referring to the period of the incident) were poorly organised; for example, notes from periods as far apart as several months were photocopied onto the same pages and appeared to be incomplete.

39. Adviser 3 confirmed the details of Mr A's accident as outlined by Adviser 1 and stated, 'eye witness state [Mr A] got up from seat and fell forward'. Adviser 3 also noted the documented record by the Doctor and Triage Nurse of Mr A's presentation. He stated that Mr A was referred to the on-call medical team 'but there was no diagnosis formally recorded'. He noted the results from the blood screen were recorded, showing a raised blood alcohol of 316.0 milligrams per decilitre (normal range under ten).

40. Adviser 3 stated:

'there was an [undated, untimed and out of sequence] note from a [doctor]. This noted that the patient [Mr A] had had an x-ray of the C spine. [The doctor] noted the imaging to be very poor and he was not able to find a cause for the patient's [condition]. There is a query of a C4 fracture which was discussed with A&E but as noted the very poor quality films. It was therefore decided, at this point, to immobilise the C spine and obtain a CT scan of the neck.'

41. Adviser 3 reviewed another note he stated was in unclear writing, which included the diagnosis of:

'spinal cord injury probably secondary to trauma but subgaleal haematoma probably [??] in direct trauma. CT report is no fracture. No comment on spinal cord.'

42. This note also stated that as no fractures were seen, there was no need for complete immobilisation and 'to try SGH [presumably the Southern General Hospital] for advice'.

43. Adviser 3 provided a detailed timeline analysis and review of the Records for 15 January, 16 January, 17 January and 18 January 2010. Adviser 3 also reviewed the related reports within the Records as follows: radiology reports on x-ray; and CT and MRI images of the cervical spine.

44. Adviser 3 stated that in his view, given that Mr A's initial provisional diagnosis appeared to have been that of a cerebro-vascular event or stroke, it was not unreasonable (given the witnessed and documented activity that seemed to demonstrate this) that an initial stroke management protocol was instituted for Mr A. Adviser 3 also stated that the issue was complicated, as Mr A was significantly drunk and this can be associated with bringing on fits in the elderly. However, Adviser 3 stated there was evidence of some shortcomings in Mr A's ideal management. Regardless of the mechanics of Mr A's fall, he did appear to have suffered a blow to his face or head and Adviser 3 stated that, by the protocols of the A&E department, 'his neck should have been considered as being injured until proven otherwise'.

45. Adviser 4 reviewed the cervical spine MRI dated 18 January 2010. This followed the view of Adviser 3 that the MRI study in question demonstrated disruption of the anterior column of the spine at the C5 to C6 level, which was not reported, and that if this was in fact the case, it would have a significant bearing on Adviser 3's report.

46. Adviser 4 stated there are advanced cervical degenerative changes with disc degeneration at all cervical levels, most marked at C4 to C5, C5 to C6 and C6 to C7. At the C5 to C6 level, there appeared to be fluid within the disc space and a prominent posterior diffuse disc bulge, which in combination with infolding of the ligamentum flavum was resulting in a very severe degree of canal stenosis and cord compression. There was widening of the anterior disc space and prominent pre-vertebral oedema was noted from C2 level down to approximately T2. There was also marked increased central cord signal intensity on the T2 weighted sagittal image, extending from approximately C2 to C7. A healed compression fracture of T2 was noted.

47. Adviser 4 said that these combined features would be quite consistent with a cervical hyperextension injury at the C5 to C6 level, which in the setting of a severely spondylotic cervical spine had resulted in an extensive cord lesion. He stated the image quality was not good enough to comment specifically on the status of the anterior longitudinal ligament, however, it had to be assumed that it had ruptured, indicating an unstable anterior column in extension. Adviser 4 stated it should be noted that considering the extent of degenerative change in the spine, the possibility existed that some of the cord high signal intensity pre-dated the injury, being consistent with myelomalacia secondary to cervical spondylosis. However, it would have been expected that there would have

been some clinical evidence of cervical myelopathy prior to the fall. Adviser 4 concluded that the report by the radiologist at the time of the scan was clearly a major misinterpretation of the findings (see paragraphs 41 and 43).

Summary of the key findings from Advisers 1, 2, 3 and 4

48. Mr A was admitted to the Hospital following a fall and / or seizure on a bus. He was inebriated. Mr A recovered consciousness and appeared to show neurological deficit in his limbs, initially unilaterally, however within less than 24 hours this involved all four limbs. It was recorded initially that he complained of no neck symptoms or tenderness, though this was during the period after his loss of consciousness and whilst still under the influence of alcohol.

49. An initial provisional diagnosis was made of a cerebrovascular event (stroke) and Mr A was passed to the on-call medical team.

50. After 23:00 on 15 January 2010 a cervical spine x-ray was obtained which was inadequate and difficult to interpret. A decision was taken after review of this image to obtain a CT scan of the cervical spine to immobilise Mr A's neck in a cervical collar, however, due to Mr A's habitus (size and shape) no collar would fit Mr A. The CT scan showed no evidence of fracture, dislocation or instability.

51. Within the first several hours of Mr A's admission, the diagnosis of stroke was relegated and thoughts were turned to a spinal cord type injury, of which the likeliest was thought to be a central cord syndrome. Mr A's case was discussed with the regional spinal injuries unit, the region neurosurgical unit and the on-call orthopaedic team (the latter reviewed Mr A on-site during the first 24 hours of his admission). Adviser 3 stated:

'The making of a definitive diagnosis was hampered by the fact that [Mr A] was admitted late on Friday afternoon. [The Hospital] has no MRI scanning outside normal (8am - 5pm) hours and no weekend scanning. It was not until [Mr A] was scanned on the Monday morning that the confirmed diagnosis of cord injury was made. All subsequent diagnosis has been of an initial primary pathology of central cord syndrome.'

52. Central spinal cord injuries are among the most common, well recognised spinal cord injury patterns identified in neurologically injured patients after acute trauma.

Summary of the key conclusions from Advisers 1, 2, 3 and 4

53. Adviser 1 stated that there was a lack of clarity with the Records and there was no recorded explanation why Mr A's neck was not immobilised. He stated that sufficient imaging had not been undertaken, for example neck imaging (see paragraph 25), and an inadequate assessment was made of Mr A which failed to demonstrate that sufficient cognisance had been taken of relative guidance for patients with possible head / neck injury. Adviser 1 stated that a ward doctor commented that x-ray images of the neck were very poor films (see paragraph 31). He also stated that no correct diagnosis was made during the period Mr A was in A&E (see paragraph 33).

54. Adviser 2 stated that from a nursing perspective the initial assessment of Mr A in A&E was not well documented and some notes were inadequate / incomplete. This did not comply with NMG on record-keeping. He also said that statements taken from nursing staff provided little clarity into the events of 15 January 2010 (see paragraphs 36 and 37).

55. Adviser 3 stated that Mr A suffered an injury to his spinal cord due to the incident on the bus, whereby the probable forced hyperextension of his neck led to the injury. He said:

'The hyperextension of the cervical spine, especially with one which was severely spondylotic (degenerative or arthritic) has a high likelihood of leading to an injury of the spinal cord, even without the spine suffering a fracture, or dislocation.'

56. Adviser 3 stated that while compared to an ideal situation Mr A's diagnosis was delayed by two factors:

- (i) the initial and reasonable diagnosis of a fit or stroke; and
- (ii) the lack of MRI scanning at the Hospital where Mr A was admitted.

57. Adviser 3 stated that in his view, while there were occasions where the management of Mr A's neck injury were sub-optimal according to the accepted guidelines of the Hospital and A&E, these did not have a material effect on the outcome of Mr A. He stated that from the instant Mr A had his fall on the bus which resulted in the extension of his neck, the outcome (which is his current significant neurological deficit) was inevitable:

'I feel that even a much more rapid diagnosis and more immediate attention being paid to [Mr A's] cervical spine would, in all probability, not have led to a significantly altered outcome.'

58. Adviser 4 stated that he agreed with Adviser 3's opinion regarding the MRI findings, which indicated an acute hyperextension injury and a spinal instability at the C5 to C6 level in the extended position. Following his analysis (see paragraphs 46 and 47), he stated that 'the report by the radiologist at the time of the scan is clearly a major misinterpretation of the findings'.

Conclusion

59. Mrs C complained that Mr A was subjected to unacceptable delays in his diagnosis and treatment on his admission to the Hospital on 15 January 2010. The Board have stated that delayed diagnosis was not a factor in the final outcome, which resulted in Mr A's severe disability. They also stated that early immobilisation would not have influenced the clinical outcome in this case.

60. My investigation has established several failings in this case. There was a lack of clarity in the Records and poor record-keeping. In my view this led to staff statements taken ten months after the event, contributing little to the investigation. NMG had not been followed with regard to record-keeping or SIGN guidance with regard to patients with possible head / neck injury. Insufficient imaging such as neck imaging had been undertaken; the quality of the x-ray imaging film was poor; and no correct diagnosis was made when Mr A was in A&E. Mr A's diagnosis was delayed due to a lack of MRI scanning at the Hospital and furthermore, the radiologist report at the time of the scan on 18 January 2010 had misinterpreted the findings.

61. While I accept that all these failures either individually or collectively did not have a material effect on Mr A's outcome, I am critical that such a degree of failures have been evidenced in this case and individually validated by four separate Advisers. I am also critical that MRI scanning at the Hospital is available only during 'office hours' (see paragraphs 50 and 55). This is not good use of public resources. The Board should look at how they can have better access to MRI scanning.

62. I have carefully considered all the evidence and the active knowledge presented in the Records. Taking all these factors into account, I uphold the complaint.

Recommendations

	<i>Completion date</i>
63. I recommend that the Board:	
(i) ensure that measures are taken to feedback the learning from this event to all A&E staff to ensure that similar situations will not recur;	19 December 2012
(ii) conduct a Significant Event Review of this case with an emphasis given to the misinterpretation the radiologist gave to the findings of the scan of 18 January 2010;	19 December 2012
(iii) ensure that all A&E staff are familiar with and adhere to Nursing and Midwifery Council Guidance on record-keeping;	21 November 2012
(iv) ensure that all A&E staff are familiar with and adhere to Scottish Intercollegiate Guidelines Network guidelines on suspected head / neck injury;	21 November 2012
(v) review the procedure the Hospital follows should MRI scanning outside normal hours (08:00 – 17:00) and at weekends be urgently required;	19 December 2012
(vi) review the procedure for imaging to include image appraisal and the quality of films;	21 November 2012
(vii) review the availability and provision of collars; and	21 November 2012
(viii) apologise to Mrs C for the failures identified in this report.	21 November 2012
64. The Ombudsman asks that the Board notify him when the recommendations have been implemented.	

Explanation of abbreviations used

Mrs C	The complainant
The Board	Ayrshire and Arran NHS Board
Mr A	The aggrieved, Mrs C's husband
The Hospital	Ayr Hospital
A&E	Accident and Emergency
The Records	Mr A's clinical records
Adviser 1	The Ombudsman's A & E Consultant Adviser
Adviser 2	The Ombudsman's Senior Nursing Adviser in an Emergency Department / Emergency Department Manager
Adviser 3	The Ombudsman's Consultant Spinal Surgeon Adviser
Adviser 4	The Ombudsman's Consultant Musculoskeletal Radiologist Adviser
MRI Scan	Magnetic resonance imaging
The Director	The Nurse Director who replied to Mrs C's complaint
GCS score	Glasgow Coma Scale score – a measure on consciousness

CT scan	Computed Tomography scan
The Triage Nurse	The A & E nurse who initially assessed Mr A at the A&E on 15 January 2010
The Doctor	The doctor who initially assessed Mr A at the A&E on 15 January 2010
ECG	Electrocardiograph
SIGN	Scottish Intercollegiate Guidelines Network
NMG	Nursing and Midwifery Council Guidelines
SGH	The Southern General Hospital

Glossary of terms

Acute lesion	Tissue damage caused by trauma
Anterior column of the spine	The ventral ridge of gray matter in each half of the spinal cord
Anterior longitudinal ligament	The anterior longitudinal ligament is a ligament that runs down the anterior surface of the spine
Bilaterally	Pertaining to both sides
Canal stenosis	Narrowing of the spinal canal
Cannula	A tube that can be inserted into the body
Cerebro-vascular	Group of brain dysfunctions related to disease of the blood vessels supplying the brain
Cervical spine	Begins at the base of the skull, with 7 vertebrae and 8 pairs of cervical nerves
Cervical cord lesion	Trauma to the top part of the spine
Electrocardiograph	An instrument used in the electronic detection and diagnosis of heart abnormalities
Hyperextension injury	The movement of joints, tendons, or muscles beyond their normal limit
Ligamentum flavum	A ligament that connects the laminae (flat layer of membrane) of two adjacent vertebrae

Log roll	Manoeuvre used to turn a reclining patient from one side to the other or completely over without flexing the spinal column
Myelomalacia	a pathological term referring to the softening of the spinal cord
Orthopaedic consultant	A Consultant trained in the diagnosis and treatment of injuries and diseases of the musculoskeletal system.
Paraesthesia	is a sensation of tingling, pricking, or numbness of the skin with no apparent physical cause
Spondylotic	Degeneration of the vertebrae in the neck (which are known as the cervical vertebrae)
Subgaleal haematoma	Is bleeding in the potential space between the skull periosteum (tissue covering the bones) and the scalp galea aponeurosis (this covers the upper part of the head)
Tetraplegia / tetraplegic	Describes someone who has suffered a spinal; cord injury and has then lost control of arms and legs
Vertebral oedema	Spinal fluid
Weighted saggital image	usually used to assess the cervical spine and the contents of the spinal canal