Scottish Parliament Region: North East Scotland

Case 200400338: Tayside NHS Board

A complaints investigator with the delegated authority of the Scottish Public Services Ombudsman has conducted this investigation.

Summary

1. On 18 March 2004 the Ombudsman received a complaint from a man (referred to in this report as Mr C) that there were failures in the treatment and care of his 17 year-old son (referred to in this report as F) provided by NHS Tayside (or their predecessor organisation) between October 1989 and December 1998 and that these failures may have contributed to F's death on 25 December 1998. Mr C also complained about the poor handling of his complaint by NHS Tayside. My investigation partially upheld Mr C's complaint and found that there were several failings and matters of concern. In the light of these findings, the Ombudsman has recommended that NHS Tayside make a number of apologies to Mr and Mrs C and make a payment of £1,200 as financial redress for their time and distress pursuing this complaint. The Ombudsman has also made some recommendations regarding clinical and administrative practice. Several years have passed since the time of many of the events in this case. I acknowledged that NHS Tayside have already made a number of changes, particularly with regard to complaint handling. I welcome these because I consider they would have had a beneficial impact on this complaint and they have negated the need for further recommendations. A full summary of recommendations is in paragraph 158.

2. This complaint concerns a number of specialised medical conditions and procedures. A glossary of those terms is contained in Appendix 2. This complaint involved a considerable number of medical and other personnel; a summary of titles appears in Appendix 1. A detailed chronology of the relevant events on 24 and 25 December 1998 is given at Appendix 3.

Complaint as put to the Ombudsman

3. Mr C complained that NHS Tayside:

(a) failed to exercise proper clinical judgment by not arranging follow-up for F as needed between September 1993 and December 1998;

(b) failed to exercise proper clinical judgment by not providing appropriate care and treatment for F on the 24 and 25 December 1998;

(c) failed to administer his complaint properly, in not giving it proper and timely consideration at local resolution;

(d) failed to administer and run the independent review process properly;

(e) failed to exercise proper clinical judgment by not taking action on the recommendations of the independent review assessors.

Medical history

4. *17 October 1989* - F, then aged eight, was admitted to Perth Royal Infirmary (PRI) with sudden onset of severe headache and nausea. His condition worsened and he went into a coma. He was stabilised and transferred to the Dundee Royal Infirmary for assessment by consultant neurosurgeon Z. A CT scan showed a large posterior fossa (interior back of the base of the skull) haemorrhage on the left side of the brain. F was operated on to remove a large haematoma (blood clot). Following surgery he began to recover and an angiogram was performed. The results of this indicated that F had an arterio-venous malformation (AVM) of an 'unusual' kind. He had a further operation on 8 November 1989 to remove this malformation. F then had a long period of rehabilitation. A further angiogram was done in May 1990 but it did not find anything abnormal. F was discharged with no plan for follow-up.

5. *3 June 1993* - F, then aged 12, took ill at school and was again admitted first to the PRI, then stabilised and transferred to the Ninewells Hospital, Dundee. A CT

scan showed a further large posterior fossa haemorrhage. F was operated on again, by consultant neurosurgeon Z and the blood clot was removed. Consultant neurosurgeon Z also noted the presence of a cavernoma and removed this at the same time. F made a good recovery and was discharged home on 18 June 1993. F had an MRI scan in September 1993 and it was noted by consultant neurosurgeon Z that there was no remaining abnormality.

6. It is also important to note that Mrs C (F's mother) suffered an aneurysm when she arrived at the Ninewells Hospital, following F's admission on this occasion. She required an emergency operation herself and required several months of rehabilitation and follow-up. This incident influenced Mr C's concerns regarding the underlying cause of F's condition, in particular whether there was a hereditary element to this.

7. *24 December 1998* – F, then aged 17, became unwell and following a consultation by phone between GP 2 and a Senior House Officer (SHO) in the Neurology Department in the Ninewells Hospital, F was taken by ambulance to the PRI, initially for further observation. His condition on arrival had deteriorated rapidly and he was stabilised before transfer to the Ninewells Hospital. A CT scan at the Ninewells Hospital showed a further large posterior fossa haemorrhage. F was operated on to remove the blood clot by consultant neurosurgeon Y. His condition worsened the next day and he died. A detailed chronology of these events can be found in Appendix 3.

Medical background (based on the advice given by the neurosurgery adviser)

8. The neurosurgery adviser stated that F's medical condition arose due to recurrent haemorrhage within the cerebellum, located in the posterior fossa of the skull. The posterior fossa is situated at the base of the skull at the back of the head adjacent to the junction of the skull and the neck. The posterior fossa lies within the skull at this site and contains the two cerebellar hemispheres and the brain stem. The cerebellum is mostly involved in the control of balance. The brain stem contains many important physiological centres, most notably those which control breathing and the cardiovascular system.

9. In order to access the brain for surgical procedures the skull has to be breached. This can be performed by either a craniotomy or a craniectomy. In a craniotomy a disc of bone is removed from the skull to allow access to the brain. This is usually replaced at the end of the operation and fixed in place with nylon, steel wire or metallic plates. In a craniectomy the skull is breached initially with a drill or burr and then this initial opening is extended as required by progressive removal of bone using rongeurs or a high-speed burr. At the end of the procedure the bone is not replaced and so there is a residual bone defect in the skull such that the soft tissues and muscle overlying the skull surface are in direct contact with the dural membrane which covers the brain with no intervening bone.

10. Access to the posterior fossa is usually achieved by performing a craniectomy either in the mid line or to the right/left depending upon the situation. In young children, a craniotomy is performed in this area by some surgeons. However, this is most commonly carried out for elective surgery and is not used in an emergency when there is a risk of brain swelling following operation. Occasionally, in young children, new bone can form at the site of a craniectomy but the chances of this occurring decrease with age. Haemorrhage in the posterior fossa can lead to an obstruction of the normal flow of cerebro-spinal fluid (CSF) through the brain. When the flow of fluid is obstructed it creates a backpressure effect, such that the cavities containing CSF become distended and enlarged, a condition known as hydrocephalus. Worsening hydrocephalus leads to progressive brain injury and loss of consciousness.

11. The emergency treatment of hydrocephalus involves insertion of an external ventricular drain in the appropriate area of the brain. This procedure involves drilling a hole in the skull to access the brain surface and then passing a soft plastic catheter-tube through the brain into the ventricular system to allow drainage of the CSF and reduce the pressure in the brain.

History of the complaint (based on Mr C's recollection of events)

12. *Informal approach*: Mr C had concerns about the treatment F had received on the night of 24 December 1998. He raised these matters with GP 1 who suggested that Mr C should raise them directly with neurosurgeon Y. Neurosurgeon Y,

however, had gone on long-term sick leave so it was arranged for Mr C to meet with locum consultant neurosurgeon X and later with neurosurgeon W (the senior consultant at The Ninewells Hospital). Neither meeting was successful and Mr C's concerns increased. Mr C felt that neurosurgeon W was very defensive and gave the impression that there was something to hide. Mr C asked to see F's records and was told by neurosurgeon W that he was not entitled to see them and the only way he would get access to them was through the courts. Mr C was not happy with these responses and told neurosurgeon W he had no choice but to speak to lawyers.

13. *Legal Proceedings*: Mr C was not made aware of the NHS complaints procedure. He consulted a lawyer, who advised that it would be necessary to obtain expert medical opinions. Mr C spent the next two and a half years pursuing this legal route. The financial costs were prohibitive and Mr C abandoned the legal action. He wrote to the Prime Minister to express his dissatisfaction and his letter was passed to the Scottish Executive Health Department, which in turn passed it to Tayside NHS University Hospital Trust (the predecessor organisation of NHS Tayside), which accepted the complaint, although it was now more than three years since F had died.

14. *The local resolution stage of the NHS complaints process*: In June 2002, Mr and Mrs C met with complaints staff to discuss the complaint. A further meeting was arranged with consultant neurosurgeon V and neurologist 1 in August 2002. Initially, Mr and Mrs C felt this was a useful meeting. However, it subsequently proved impossible to agree a minute of this meeting. Although a complete record could not be agreed, the limited record that was agreed contained a number of points, which are referred to elsewhere in this report. As this meeting had not resolved Mr C's issues, he was referred to independent review.

15. *The independent review stage of the NHS complaints process*: The independent review convener (the convener) agreed to hold a panel but limited its remit to consideration of F's treatment between 1993 and 1998 and did not consider Mr C's concerns about the handling of his complaint. The panel meeting was problematic but Mr C felt that the medical assessors (the assessors) were very

helpful. A delay of several months (from 12 May 2003 to 13 February 2004) followed before the panel report was produced. This delay was caused by a failure of the panel chair (the chair) and the assessors to reach a mutual understanding on one point of the assessors' report. The assessors were excessively slow to respond to numerous requests from the chair and the independent review panel administrator (the administrator). When the report was finally sent, Mr C was not satisfied that it had reached appropriate conclusions, based on the assessors' report and was still not satisfied that he had discovered the truth about F's treatment. He complained to the Ombudsman.

Investigation and findings of fact

16. The investigation of this complaint involved obtaining and reading F's medical records, the reports of the expert assessors obtained by Mr C during the course of pursuing his complaint, correspondence and documentation supplied by Mr C and the NHS Tayside complaint files. I met Mr and Mrs C. I also informally discussed the case with the representative of Tayside Health Council who attended the independent review panel (the panel) with Mr and Mrs C. Advice has been obtained from a surgical adviser and a specialist neurosurgery adviser to the Ombudsman. I would note, however, that Tayside NHS Board (the Board) have not been able to supply me with any radiological images for F and these have not been reviewed by the advisers. Written enquiries were made of the Board. I now set out, for each of the five heads of Mr C's complaint, my findings of fact and conclusions. Where appropriate, the Ombudsman's recommendations are set out at the end of the sections dealing with the individual complaints. Mr C and the Board have been given an opportunity to comment on a draft of this report.

(a) Failure to exercise proper clinical judgment by not arranging follow-up care for F as needed between September 1993 and December 1998

17. Mr C complained that F had no follow-up care between 1993 and his death in 1998. He believed that, if F had been given regular scans, then the third abnormality would have been detected and an operation performed to remove this. F would not have suffered the haemorrhage on 24 December 1998 and died. Mr C told me that he accepted that F might have been badly affected by any further operation but felt that at least there would have been an opportunity to consider the

risks, and the possibility that F would still be alive.

18. The letter sent from consultant neurosurgeon Z to GP 1 on 6 September 1993 (following F's second episode) suggested that it was consultant neurosurgeon Z's intention to scan F again in a year's time. I note that the MRI report sent to consultant neurosurgeon Z, following F's MRI on 27 August 1993 (dated 1 September 1993), included the statement 'A repeat scan in one year's time would be advisable'. This report was written by radiologist 1. In his letter to Mr and Mrs C, also dated 6 September 1993, consultant neurosurgeon Z did not refer to his view that there was a need for a further scan. Instead he stated 'No action is required. I would like to review F in clinic in a few months from now and enclose herewith an appointment'. F was seen as an outpatient on 17 December 2003. Consultant neurosurgeon Z's letter to GP 1 at this time referred to further follow-up with the ophthalmology department, but stated that 'I was very pleased to see the situation with regard to his scan, and all one can do is be hopeful that no further bleed will now occur, because I can see no reason at this juncture to investigate that aspect any further'.

19. These conflicting statements led to considerable speculation by many of those involved in the complaint as to consultant neurosurgeon Z's intentions with respect to follow-up. I do not believe any clear conclusion can be drawn from his letters, only that he did consider the need for further follow-up. Following F's second operation and subsequent outpatient follow-up appointment, consultant neurosurgeon Z had a period of long-term sick leave and subsequently retired early and unexpectedly. He died shortly thereafter. No further clarification of consultant neurosurgeon Z's intentions is possible.

20. Mr C said that when he later met consultant neurosurgeon W (approximately July 1999), he said that it would not have been advisable to follow-up F as the only way of doing this would be an angiogram and it was not advisable to perform this on repeated occasions. Mr C told me that this was also the view expressed by consultant neurosurgeon X at their meeting.

21. At the meeting with consultant neurosurgeon V and neurologist 1 (August

2002), Mr C was told there was no single reason for F not being followed up, but rather a sequence of events, such as the unexpected retiral of consultant neurosurgeon Z and the GP failing to request an appointment for a screening. The minute of the meeting, as agreed by the Board, stated that consultant neurosurgeon V agreed that F should have been screened at two-yearly intervals and that this might have detected a new problem, which might in turn have been treated successfully. This view contradicts the views of consultant neurosurgeons X and W.

22. The assessors at the independent review concluded that it would have been optimal and best practice for F to have had further radiological investigation, probably at annual intervals, for an MRI scan and perhaps a further angiogram in 1995, or before, if the MRI scan had demonstrated abnormality. They pointed out that there were risks to any further operation on F – even an elective one – but this would have given the family the opportunity to discuss further treatment options and be aware of the relative risks.

23. The neurosurgery adviser said that he believed that, on balance, it would have been appropriate for F to have been monitored as an outpatient, with further imaging, after the second haemorrhage as initially suggested by consultant neurosurgeon Z. He considered that the absence of any abnormality on the previous check angiogram and the MRI scan might have led to a false sense of security as these suggested that F's condition had been cured. The adviser pointed out that F's case was unusual, in that a recurrent significant cerebellar haemorrhage (from any cause) is unusual in children.

24. The neurosurgery adviser also referred to a difficulty identified by both the neurosurgery staff at the Board and the several medical assessors involved in this complaint. There is considerable debate over the exact cause of F's first two haemorrhages and this difficulty was the reason for much of the disagreement in the medical opinions in this case. Consideration was given to at least two different types of pathology and the information provided within the radiological and pathological reports is conflicting. This is described in paragraphs 25 to 28.

25. Following F's first haemorrhage, the angiogram report dated 1 November 1989 described the presence of 'a superficial, possibly dural, AV malformation'. Following surgery on 9 November 1989 the histology report said that there were abnormal blood vessels within the cerebellum and that 'the findings are typical of an AVM (cavernous angioma)'. The pathology report said that 'meningeal vessels also seem excessively large and numerous'. This pathology report is confusing. AVM and cavernous haemangioma are not the same - they are distinct entities.

26. The neurosurgery adviser stated that:

> 'An arterio-venous malformation is an abnormality of blood vessels which involves high flow rates of blood through the abnormality. This would be in keeping with the features described in the angiography report – November 1989. The pathology report also describes enlargement of the meningeal vessels. This would also be in keeping with a possible dural element of the malformation. The cavernous angioma described is another type of abnormality, best regarded as a small 'knot' of fragile capillary like vessels, which has a slow flow of blood through it and is not visible on conventional angiography. Arterio-venous malformation of the brain and dural arterior-venous malformations are associated with catastrophic brain haemorrhage. Cavernous angiomas are associated with haemorrhage but these tend to be small and, in the main, not life threatening'.

27. Following his second haemorrhage in June 1993 F did not have a further angiogram. Consultant neurosurgeon Z stated, in the operation note, that he excised tissue, which 'looked like either a cavernous angioma or haemangioblastoma'. The neurosurgery adviser stated again that these are separate and quite different conditions. Haemangioblastoma is a cystic vascular tumour, which most commonly affects the cerebellum. Subsequent pathological examination of the tissue removed described it as being 'in accord with the clinical diagnosis of arterior-venous aneurysm'. The neurosurgery adviser told me that this description does not suggest either haemangioblastoma or cavernous angioma. He suggested that it was most likely an abnormality associated with a vascular malformation of the cerebellar.

28. Following the operation in November 1993, F had a further MRI scan. The neurosurgery adviser told me that this is considered the best option for detecting cavernous angioma. This MRI did not show any abnormality. If the underlying problem was a cavernous angioma, this result would suggest that surgery had cured the problem. However, the neurosurgery adviser told me that the resolution (visual quality) of the MRI may have been such that it would not have shown a dural or other AVM even though they may have been present. The problem of quality of imaging after three operations was mentioned by the assessors as a limiting factor to the quality of any follow-up radiology.

29. The neurosurgery adviser said that it would be very rare for both AVM and cavernous angioma to be present. The assessors involved in the independent review process acknowledged this rarity. The reports of the expert neurosurgical assessor and the expert neuroradiological assessor commented that, in many years of experience, they had not come upon this dual presentation before. I have already noted the rarity of multiple brain haemorrhages in a child.

30. The neurosurgery adviser expressed concern at the multitude of possible underlying causes and problems, which are described in the various reports and notes. He told me that it was his impression that a number of pathological entities had been described but they seemed to have been used interchangeably to describe a single problem. The adviser believed it was not possible to state exactly the nature of F's underlying problem, based on these reports.

31. The adviser said that it would have been reasonable to consider imaging with MRI and cerebral angiography, to screen for any developing problem after a suitable interval. He said that it is important to recognise that this imaging might not have detected any abnormality. If imaging performed three years after the second haemorrhage did not show an abnormality, then he considered that discharge from follow-up would have been appropriate. He was also clear that, if a further abnormality had been identified, then further treatment could have been considered but would have been associated with significant risk. However, overall he believed it would have been reasonable to continue with follow-up as an

outpatient following the second haemorrhage, and also to perform further imaging to monitor progress.

32. In response to my enquiries, the Board said that, after F's first episode, the angiogram identified no evidence of residual AVM indicating no risk of rebleeding from an AVM. In 1993, the finding was a cavernous haemangioma and the MRI performed after F's operation showed no residual cavernoma. This would indicate no further need for follow-up, as the incidence of a recurrence following excision (removal at operation) is very low.

Failure to exercise proper clinical judgment by not arranging follow-up for F as needed between September 1993 and December 1998: conclusions

33. Following F's first haemorrhage and surgery, his postoperative angiography suggested that the underlying condition was totally removed, since it did not show any residual AVM. It was reasonable to discharge him from follow-up at that stage. Following his second haemorrhage, the MRI also suggested a complete removal of the presenting problem.

34. Recurrent intracranial haemorrhage in children is uncommon and F's past history could have suggested that he remained at risk of further haemorrhage. As I have indicated above, there was a confusing lack of clarity in the terminology adopted by the various practitioners involved in F's care. This confusion would appear to be caused by the complexity of F's medical history, the potential rarity of F's underlying condition(s) and by a lack of precision on the part of medical professionals. Much of this may be unavoidable. The history of this case shows that, even among experts, this is an area of medicine where there are a number of possible explanations and that interpretation and diagnoses can vary.

35. I consider that the Board's response to my enquires (see paragraph 32) was factually correct but that they failed to take account of the rarity of F's condition, the confusion surrounding F's condition or the potentially compromised quality of radiological images after three operations. I also note the Board's response did not accord with the views expressed by their own consultant neurosurgeon - consultant

neurosurgeon V - during local resolution. I conclude that the Board response took an overly simplistic view of events in 1989 and 1993.

36. I recognise that this may not be helpful to patients or their families, but accept that complete medical clarity and agreement are simply not possible now (nor at the time of these events). Nonetheless, I would point out that the poor quality of communication between medical professionals and F's relatives was a major reason why Mr C continued to raise clinical concerns. The Board's explanations to Mr C over-simplified and rationalised the medical history of this case in a way that I do not consider logical. This has not been helpful. Because of this Mr C did not feel able to trust the answers given to him on other aspects of his complaint, severely hindering any attempts to resolve his matters.

37. It is not possible to say what consultant neurosurgeon Z's intentions were with respect to follow-up. His letter to the GP, following the MRI in August 1993, indicated that he did intend to follow-up after one year, as recommended by the neuroradiologist, but his later letter might suggest that he altered his view, although no reason for this was given. We can only speculate as to his exact intention. I note, however, that the radiologist who reviewed the MRI in 1993, consultant neurosurgeon V (a Board employee), both expert assessors, the assessors to the panel and the neurosurgery adviser all considered that some form of follow-up should have happened. I conclude that follow-up should have happened.

38. Having concluded that follow-up should have happened in F's case, I am very conscious of the apparent rarity of, and lack of certainty as to, F's underlying condition(s). I have discussed this with the neurosurgery adviser who told me that he did not consider that it would be reasonable, or in line with usual practice elsewhere, to recommend a specific protocol or other action to establish a system for follow-up based on this case.

39. As mentioned above, I consider the Board's response, that follow-up was not necessary, was based on an unjustifiable and overly simplified analysis of F's known conditions. An angiogram is an invasive procedure and repeated use of it is not advisable. However, a follow-up regime was not limited to the use of

angiogram alone. I consider the protracted discussion, of potential risks of follow-up and further treatment, which occurred during the independent review has contributed to a confusion of the issue. The issue is not what the consequences might have been for F had there been follow-up but whether the decision not to follow-up was appropriately considered and acted upon.

40. In making the decision whether to follow-up, F's family should have been fully involved in reaching this decision. This would include discussion of what might be the consequences of detecting any future problem and the consequences of the follow-up procedure itself. In 1993, it was an accepted feature of modern medical practice, within the NHS in Scotland, that patients (and carers) were entitled to be made aware of options and fully involved in their care:

> 'You are entitled, if you want, to accurate relevant and understandable explanations of:
>
> - what is wrong;
> - what the implications are;
> - what can be done;
> - what the treatment is likely to involve'
>
> *[Extract from 'The Patient's Charter' Published in September 1991 by the Secretary of State for Scotland.]*

41. I would agree with consultant neurosurgeon V, who told Mr C that there were a number of reasons why follow-up did not occur, in particular, the unplanned retiral of consultant neurosurgeon Z. Such situations can prevent efficient handover of a patient's care to a newly appointed consultant. It is impossible to say conclusively whether this contributed to F's limited follow-up. However, it is incumbent on the Board to ensure that there are processes in place to minimise the risk of 'losing' patients from the system. I have not seen any evidence of such planning in this instance.

42. *Summary Conclusion*: I consider that there is a substantial weight of evidence to indicate that follow-up for F should have been properly considered and, on balance, follow-up should have been offered to F following his second haemorrhage. I conclude that the Board failed to exercise proper clinical judgment with regard to follow-up treatment for F between 1993 and 1998. I uphold this aspect of the complaint.

Failure to exercise proper clinical judgment by not arranging follow-up for F as needed between September 1993 and December 1998: recommendations

43. The Ombudsman recommends that the Board apologise for the failure to ensure appropriate consideration was given to providing follow-up to F and for not providing such follow-up.

44. The Ombudsman recommends that the Board review their arrangements for case review and hand-over of a consultant's caseload in the event of an unplanned cessation of employment. She requests that the Board provide her with evidence of this review and the resulting (or existing) arrangements for such review and hand-over.

(b) Failure to exercise proper clinical judgment by not providing appropriate care and treatment for F on the 24 and 25 December 1998

45. A detailed chronology for these events is in Appendix 3

46. Mr C made several complaints about the actions of consultant neurosurgeon Y and neurosurgery staff at the time of F's third haemorrhage. These included:

(b)(i) the SHO and GP 2 failed to diagnose F's true condition properly and consequently caused a material delay before F's vital operation;

(b)(ii) consultant neurosurgeon Y did not carry out a craniotomy as needed (and as Mr C believes was carried out on the two previous occasions);

(b)(iii) consultant neurosurgeon Y told him he had performed this operation

and this is what he believed had occurred when he signed the consent form after the operation;

(b)(iv) there is no operation note;

(b)(v) staff did not act promptly to resuscitate F when his condition declined on 25 December 1998.

(b)(i) Action by the SHO and GP 2

47. Mr C said that, following F's second haemorrhage, consultant neurosurgeon Z emphasised to him the importance of getting F to hospital as quickly as possible in the event of any future bleed. Mr C said that, when he returned home on 24 December 1998 after Mrs C telephoned to say F was unwell, he knew immediately that F was haemorrhaging again. Mrs C had first telephoned the general practice requesting that the GP attend on a home visit to assess F.

48. Mr C said that the locum, GP 2 did not arrive for 50 minutes. He said that GP 2 did not believe F could rebleed after five years and said this was a migraine headache. GP 2 contacted The Ninewells Hospital and discussed F's medical history. The SHO advised admitting F to his local hospital, the PRI, for observation and a CT scan if his condition changed. On arrival at the PRI, F was in a deep coma and was rapidly intubated (oxygen tube inserted in the throat to assist with breathing) before transfer to The Ninewells Hospital.

49. Mr C believed that the delay, caused by misdiagnosing F and sending him to the PRI rather than immediately referring him to The Ninewells Hospital, meant that F did not arrive at The Ninewells Hospital in a conscious state and his condition was much worse than if he had been immediately sent to The Ninewells Hospital.

50. During the local resolution stage of the NHS complaints process, consultant neurosurgeon V and neurologist 1 both agreed with Mr C that there was a delay in GP 2 referring F to hospital. It was also clarified, by consultant neurosurgeon Y during the independent review stage, that the protocol at that time would have required the SHO to contact the consultant on duty to seek his opinion as to the

appropriate course of action. Consultant neurosurgeon Z said all SHOs would have been made aware of this. There is no record or recollection of such a contact in this case.

51. The assessors at the independent review commented that they considered the advice given to GP 2 by the SHO was wrong and that they regarded this as a systems failure, as the call was not referred to the consultant. There was considerable debate, however, regarding whether this delay and failure made a difference to F's chances of survival. The assessors considered that it was highly possible that F would have suffered his severe deterioration at the time he was in transit to The Ninewells Hospital and, had intubation not been rapidly available as it was at the PRI, F might not have survived the journey to hospital.

52. The neurosurgery adviser commented that neurosurgical units are tertiary referral centres and do not usually take direct referrals from GPs unless the patient is under current active treatment by the unit. However, having taken the referral from the GP it would have been appropriate for the SHO to have contacted either the registrar or the consultant on call, to advise them of the details of the case and the arrangements that had been made. This would have allowed the advice given by the SHO to be overridden if it was felt appropriate.

53. The neurosurgery adviser also commented that it is difficult to judge whether a more rapid referral was either possible or would have made a difference. He noted that GP 2 was at the local hospital when telephoned and had to call in at the surgery to collect F's notes, all of which delayed his arrival. (In fact the local hospital is attached to the surgery by a corridor and this delay would have been minimal.) While the adviser commented (see paragraph 52) that it would have been appropriate to have involved a consultant in the referral, he also noted that this conversation might have led to further delay while the SHO contacted the consultant to discuss matters. He also mentioned the likelihood of F's condition on arrival being worse had he been in transit at the time of going into deep coma without extensive resuscitation equipment to hand. He said that, on balance, in his view the recommendation of the SHO to refer to the PRI, did not compromise F's care.

54. *Action by the SHO and GP 2: conclusions*. In the absence of any contrary evidence, I conclude that the SHO failed to follow the correct protocol and involve a consultant. I find that there was a clinical failing in this regard.

55. I acknowledge that, for Mr and Mrs C, every minute after F became ill was vital to his chances of survival. I also acknowledge their acute frustration that F's previous medical history did not appear to speed or guide the actions of GP 2 in making a referral. However, I have not found sufficient evidence to suggest any of the delays were excessive or represented a clinical failure. I accept that it was possible that F could have arrived at The Ninewells Hospital while still conscious, but I am persuaded by the views of the assessors and the neurosurgery adviser that there are many possibilities and contributory factors which make this less likely.

56. Based on the clinical opinions I have seen, it is not possible to state whether any other possible course of action would have resulted in a more favourable outcome for F. Because of this considerable uncertainty I cannot, on balance, uphold this aspect of the complaint and do not find any clinical failure with regard to F's initial admission to the PRI rather than The Ninewells Hospital.

57. There has been very little comment on the misdiagnosis by GP 2. I note that another senior specialist doctor also held GP 2's (erroneous) view that F could not rebleed after five years in this case. GP 2 sought to consult the neurology department to check his diagnosis and this was the correct procedure to follow. I do not consider there was a clinical failing in this regard and do not uphold this aspect of the complaint.

58. *Action by the SHO and GP 2: recommendations*. The Ombudsman recommends that the Board apologise to Mr and Mrs C for the failure of the SHO to follow the protocol. She recognises that these events occurred a number of years ago and does not believe there is any further action that can be usefully recommended in order to prevent a reoccurrence of this breach.

(b)(ii) Failure to perform the necessary craniotomy

59. Mr C complained that consultant neurosurgeon Y did not perform the necessary operation on F – a craniotomy. He further complains that consultant neurosurgeon Y told him more than once, on the evening of 24 December 1998, that this was the operation performed and this was repeated by consultant neurosurgeons X and W. Mr C was subsequently told during the independent review that this was not the operation performed. It is important at this point to separate out the two strands of this complaint: whether the correct operation was performed and whether Mr C was properly informed. The latter is dealt with in sub-section *Failure to Communicate etc* (see paragraph 74 and following text) and the question of which operation was performed is addressed immediately below.

60. Mr C said that F's previous operations in 1989 and 1993 took seven and a half hours and five and a half hours respectively. Mr C complained that in 1998 F's operation took less than one and a half hours. Mr C had no adequate explanation of this difference and believes it indicated that F did not have the operation he needed but only the insertion of a drain. Mr C also cited as evidence the fact that F's hair was intact and clean when they saw him immediately post-operatively with no obvious wound site other than a drain.

61. Mr C said that he noted this concern in his meetings with consultant neurosurgeon X and later with consultant neurosurgeon W. He said that he was told it was no longer the practice to shave patients. When he pressed for an explanation of the time difference consultant neurosurgeon W became defensive and would not offer any explanation. He was later told by consultant neurosurgeon V that F had not needed a craniotomy as the bone had been removed on a previous occasion and not replaced. Mr C told me that he would have noticed if F had a 'hole' in his skull for a number of years but this was not evident to him or Mrs C. He also said he would expect it to have regrown in this time.

62. The neurosurgery adviser commented that the records of F's first operation show that he had insertion of an external drain and also a 'mid line occipital craniectomy and foraminotomy and laminectomy of C1' to evacuate his cerebellar haemorrhage. This description indicates that F had an extensive bony

decompression (bone removal) at the base of the skull, involving the upper part of his neck to allow access for surgery and relieve the pressure on the brain. The anaesthetic record indicates that this procedure took approximately two and a half hours.

63. The neurosurgery adviser commented that F had a second operation on 8 November 1989 to remove the AVM. Consultant neurosurgeon Z's operation note indicates that the original wound was re-opened and converted into a 'left horseshoe approach' - this is a method of increasing access to the cerebellar area of the brain. His description suggests further significant bone removal at the base of the skull over the posterior fossa. The anaesthetic record on this occasion shows that the operation took approximately three and a half hours, because removing the AVM was a more complex operation than the initial evacuation of the blood clot. This operation was a craniectomy.

64. The neurosurgery adviser commented that, at F's third operation on 3 June 1993, no bone removal was required. Consultant neurosurgeon Z's operating note stated that 'On turning the muscle of the posterior fossa sub-occipital region it came away with the dura. Obviously no dura had formed in spite of the dural graft in this child'. The adviser told me that this description clearly indicated that there was no bone at the base of the skull over the posterior fossa. The muscles over the back of the neck had attached to the dural substitute used to cover the brain at the previous operation. There was no indication that any new bone had formed at the site of the previous operation. The adviser also noted that consultant neurosurgeon Z commented specifically that 'the muscle flap is fixed back into position making no attempt to reform a dural graft'. This is a common approach to posterior fossa decompression when there is concern regarding brain swelling at the site of surgery. The anaesthetic record relating to this procedure indicated that it lasted two hours. This operation was a posterior fossa decompression and evacuation.

65. The neurosurgery adviser said that the missing bone in the skull at the site of the posterior fossa craniectomy would not be externally visible - unlike bone removal in the top or side of the skull. The muscles overlying the posterior fossa

are very thick and would hide the defect. The bony defect could be apparent to touch although scarring of the soft tissues at the site of operation can make the operative site feel rigid which disguises the missing bone even to touch. The bony defect would have been evident on post-operative scan. However, the Board have not been able to find F's radiological images. The radiologist's report, relating to F's MRI scan performed on 27 August 1993, described 'a surgical defect is present in the left cerebellar region' which indicated missing bone.

66. The neurosurgery adviser commented that there was no operation note relating to F's surgery on 24 December 1998 (see paragraph 90 and following text). However, the theatre record stated that F underwent insertion of an external ventricular drain and evacuation of the posterior fossa haematoma. The anaesthetic record indicated that F was in the theatre at 20:55 and that surgery commenced at 21:10. The anaesthetic observation record ended at 22:.45. Subsequent records indicated that F was transferred to the intensive care unit by 23:00. The adviser told me that he would estimate that F's operation was completed at 22:.45. Mr C stated that he met consultant neurosurgeon Y leaving the hospital at 22:50. The adviser commented that it was possible that consultant neurosurgeon Y completed all of the operation himself if he was leaving at this time or, more likely, that, having completed the significant part of the operation, he would leave his registrar to close the wound. The adviser stated that this is accepted neurosurgical practice. All the records supported the view that this operation was a posterior fossa evacuation.

67. Because of the absence of an operation note, the adviser suggested a detailed account of this operation to provide an estimate of the time needed to perform the necessary procedure. I repeat this below:

> 'The initial part of the operation would have involved insertion of the external ventricular drain. It is possible that a burr hole, used for previous CSF drainage in the posterior part of the skull could have been used. However, even if a new burr hole in the skull had to be fashioned in order to insert the drain I would not envisage that this would have taken more than 10 minutes to perform in the hands of an experienced consultant. Evacuation of the

> cerebellar haemorrhage would have involved re-opening the previous surgical wound in the mid line. Access to the haemorrhage would have been very rapid: effectively consultant neurosurgeon Y had to incise skin, subcutaneous tissues and scar tissue in the mid line of the neck and would then reach the posterior fossa. No bone removal would have been required. Again it is likely that this dissection would have been performed rapidly and consultant neurosurgeon Y would have accessed the site of haemorrhage within 10-15 minutes of the skin incision. It is entirely possible that these procedures may have been performed more rapidly as this was an emergency situation and consultant neurosurgeon Y would not have wasted time. It is impossible to say how long it would have taken to evacuate the cerebellar haemorrhage and achieve haemostasis (control of the bleeding)'.

68. With respect to the lack of head shaving, Mr C told me that literature provided by the Brain and Spine Foundation mention the need to shave the head and that F had been shaved at his previous operation sites.

69. During local resolution, Mr C was told by consultant neurosurgeon V that shaving was no longer common practice but that practice varied from surgeon to surgeon. Consultant neurosurgeon V also stated that F might have had his hair washed and blow-dried in theatre recovery before his parents were admitted. The neurosurgery adviser commented that the practice of full head shave for neurosurgical procedures has largely disappeared. Wide local head shaves at the site of an operative procedure are still practised by some surgeons whilst others perform limited 'strip' shaves at the site of the proposed incision. Some surgeons do not perform head shaves at all. The absence of a head shave would provide an explanation for the apparent difference in appearance between the surgery on this occasion and previous episodes.

70. The adviser also said that the approach to wound closure has changed with time. Skin closure using nylon sutures or metallic clips is common. By 1998 subcuticular absorbable sutures (stitches inserted below the skin surface that leave only a fine incision line) were often used. Careful washing of the hair adjacent to the wound might be expected following the operation. The adviser was not aware

of any unit where ‘blow drying’ the hair following surgery is practised but said that theatre staff show great care in cleaning and preparing patients prior to their transfer from the theatre suite to ward or intensive care areas. The adviser believed that F’s appearance might have been dramatically different to that which his parents experienced at the time of his previous operations.

71. The view of the neurosurgery adviser was that there was no evidence to suggest that F had had an inadequate surgical procedure on 24 December 1998. He stated that the insertion of an external ventricular drain, followed by posterior fossa exploration and evacuation of haematoma would be accepted and appropriate treatment for cerebellar haemorrhage. The posterior fossa aspect of the surgery was effectively a soft tissue procedure and did not require any bone removal. He considered that it is reasonable to assume that an experienced consultant would have been able to perform this procedure within the one and a half hour period described.

72. *Failure to perform the necessary Craniotomy: conclusions.* The evidence extracted from the available medical records and the view of the neurosurgery adviser indicated that a posterior fossa evacuation was both the operation necessary and the operation performed. I conclude that F did not have a craniotomy on 24 December 1998 but that he did have the clinically appropriate procedure and that there was, therefore, no failure in clinical judgment in this aspect of Mr C’s complaint. The complaint has been considerably prolonged by the failure of medical staff to make this point clear to Mr C on several occasions.

73. *Failure to perform the necessary Craniotomy: recommendations.* In the light of these conclusions the Ombudsman has no recommendations to make. However, the recommendation at paragraph 89 with regard to better communication is of relevance to this aspect of the complaint.

(b)(iii) Failure to properly communicate with F’s family regarding the nature of his operation

74. Mr C said that he believed that, in 1989 and 1993, the operation F had was a craniotomy.

75. Mr C's account of events, as submitted to the panel, was that he spoke with consultant neurosurgeon Y prior to F's operation and asked if he would be carrying out a craniotomy and if it would be a long night. He stated that consultant neurosurgeon Y replied 'Yes'. Mr C expected this to mean five to seven hours, as in F's previous operations. When he saw consultant neurosurgeon Y leaving the hospital two hours later he was concerned and asked what was happening. Mr C complained that consultant neurosurgeon Y had his hand on the door handle and his back to the family and appeared to be planning to leave without consulting F's family and only stopped to discuss matters when Mr C stopped him. He states that consultant neurosurgeon Y said he had removed everything he safely could at that time. Mr C said that neurosurgeon Y asked him to telephone the next day but when Mr C did call he was not available. The family eventually arrived in hospital at 12:15 on 25 December 1998 to be told that neurosurgeon Y had just left. In particular, Mr C was upset when a member of staff informed him that neurosurgeon Y had been in the operating theatre all night when Mr C had seen him leave at 23:00.

76. Mr C said that later that day, after F died, he again asked consultant neurosurgeon Y if he had performed a craniotomy and stated that he was again told he had, but that they should not discuss this now but later. Mr C complained that, if consultant neurosurgeon Y had pre-planned sick leave (as he was advised during local resolution), then why did he ask Mr C to defer discussing F's operations until a later date when he knew he would not be at work?

77. Mr C was also unhappy that, at the independent review, the comment was made that, as Mr C had signed the consent form, he presumably understood the operation. In fact he was only asked to sign the consent form for F's operation (which states posterior fossa evacuation) on 25 December 1998 after the operation. The request came from a junior doctor who did not explain the procedure in any way. The form is dated 24 December 1998. Mr C has said he did not query this at the time as he thought he understood the operation being performed.

78. During the independent review, consultant neurosurgeon Y was asked about events on that night. He pointed out that he had been unaware of Mr C's complaint for almost four and a half years and that he could not clearly recall any of the events. He said he would not have performed a craniotomy and as such would not have said this to Mr C. He also said he would have wanted to speak to the family following the operation and would not have been trying to leave without doing so. He said he did not advise the family to telephone the next day but said that he would call them. He did not feel he would have told Mr C, after F died, that it was not the time to discuss F's operation and thought that Mr C may have misinterpreted what he said.

79. The earliest record I have of Mr C's recollection of events is a letter directed to the expert assessors, dated 24 August 2000. This account is substantively the same as that given at the independent review, although I note that it differs in that Mr C did not specifically record asking consultant neurosurgeon Y, either before or after the operation, if he had performed a craniotomy.

80. I note that F's medical records and the letters, written by consultant neurosurgeon Z, make references to a number of different surgical procedures, namely craniotomy, craniectomy, and haematoma evacuation. The medical records for F, dated 17 October 1989 contain references to the operation performed as being a 'craniotomy' and two lines later a 'craniectomy'. I have already referred to the confusion that exists in other places in F's records with respect to the nature of F's underlying condition (see paragraphs 25-28) and the operations performed in 1989 and 1993 (see paragraphs 59-71). The neurosurgery adviser commented that he considered that it is not uncommon for junior medical staff, nursing staff, secretarial staff, patients and their families to misunderstand the difference between craniotomy and craniectomy and use them interchangeably although they are clearly two entirely different procedures.

81. At the conclusion of the independent review, the Chief Executive wrote to Mr C, noting the views of the assessors that communication with Mr C had been very inadequate and at times inappropriate and apologising for any poor communication.

82. The assessors commented during the independent review on the signing of the consent form saying:

> 'The photocopy of the consent form is for evacuation of posterior fossa haematoma. It implies that consultant neurosurgeon Y had explained the procedure of the evacuation of the posterior fossa haematoma and drain, but another medical practitioner, whose signature we cannot read, signed the form'.

83. The neurosurgery adviser told me that there was sufficient medical urgency for F's operation to be performed without the need to obtain consent. He commented that it is likely that the need for written consent was overlooked at the time of F's initial assessment as the clinical team were rapidly arranging surgical management. The request for signature on 25 December 1998 would have been for completeness of the records.

84. *Failure to communicate properly with F's family regarding the nature of his operation(s): conclusions.* Mr C's recollection of conversations do not correspond with consultant neurosurgeon Y's. I am concerned that consultant neurosurgeon Y's recollection after four and a half years was, on his own admission, very poor. His evidence to the independent review was based on his assumption of what he would have said or not said rather than on actual recall. I am also aware that Mr C's recollection of the exact words used also varied subtly over time and I consider Mr C's earliest recorded recollection is, therefore, the most persuasive. It was the view of the neurosurgery adviser that junior medical staff in this case use many of the terms at dispute interchangeably. From my reading of F's records, I would extend this confusion regarding terminology to senior medical staff also. I do not consider that there was at any time a deliberate attempt to lie to or mislead Mr C. However, a poor standard of communication existed in this area of clinical practice, both between health professionals and between staff and patients. I uphold Mr C's complaint that there was inadequate communication with F's family.

85. The obtaining of consent for an operation is the crucial moment at which the

patient/relatives understanding of the procedure should be secured. While I accept that consent was obtained in this case, I am not satisfied that there was any realistic attempt to obtain informed consent. I do not consider that any knowledge or understanding can be implied from Mr C's signature on the consent form. I am also concerned that Mr C did not have a clear understanding of the previous operations performed and that the failure to obtain informed consent appears to have occurred more than once over a protracted period. I, therefore, uphold Mr C's complaint that informed consent for F's operation was not obtained.

86. NHS Tayside have undertaken an extensive review and revision of their procedures for obtaining consent and ensuring that such consent amounts to informed consent. The consent form currently in use requires a considerable degree of detail to be given and recorded regarding the operation and its potential risks. I welcome this and believe that if this revised form had been in use, it might have made a substantial difference to Mr C's understanding of events.

87. *Summary Conclusion*: Communication with Mr C was of a poor standard and there was no realistic attempt to obtain informed consent. I, therefore, uphold this aspect of Mr C's complaint, but acknowledge that the Board have already offered an apology to Mr C and that the change to the consent process with an emphasis on informed consent should help prevent this failure happening again.

88. *Failure to properly communicate with F's family regarding the nature of his operation(s*): *recommendations.* NHS Tayside have undertaken a complete review and changed their practice in obtaining consent. In this respect the Ombudsman has no recommendation to make.

89. I would note that this complaint is an example of the extreme difficulties that can be caused by poor communication and it would be of great benefit to consider what lessons might be learned from it, in order to improve future communication between staff and patients. The Board told me that they incorporate scenarios into their complaints awareness sessions for this purpose. The Ombudsman recommends that the communication issues in this complaint be used in such a session.

(b)(iv) Clinical failure to complete an operating note

90. Mr C complained that, while he pursued his complaint, it emerged that no record of the operation on 24 December 1998 had been completed and signed by the surgeon. This fact was acknowledged during local resolution by consultant neurosurgeon V, who accepted that the records were inadequate.

91. In response to my enquiries, the Board indicated that the procedure following emergency surgery would be to write a small note in the medical records indicating the surgery that had taken place and any instructions. The surgeon might also wish to dictate an operation note.

92. The surgical adviser disagreed with the Board's view and told me that the *Royal College of Surgeons Guidance on Good Surgical Practice (2002)* expects that a surgeon will:

> 'Ensure that there are legible operative notes (typed if possible) for every operative procedure. The notes should accompany the patient into recovery and to the ward and should be in sufficient detail to enable continuity of care by another doctor. The notes should include:
>
> - date and time
> - elective/emergency procedure
> - the names of the operating surgeon and assistant
> - the operative procedure carried out
> - the incision
> - the operative diagnosis
> - the operative findings
> - any problems/complications
> - any extra procedure performed and the reason why it was performed

- details of tissue removed, added or altered
- identification of any prosthesis used, including the serial numbers of prostheses and other implanted materials
- details of closure technique
- postoperative care instructions; and
- a signature'.

He noted that the surgeon apparently did none of this and pointed out the difficulties that occurred in responding to this complaint because the information, which should be contained in this note, was not available.

93. During the independent review, the panel noted that the operation note was not available and described this as regrettable, but that it had not been possible to establish the reason why.

94. In his evidence to the panel, consultant neurosurgeon Y stated that he took responsibility for the missing note but could not recall if he had dictated a note prior to taking sick leave or not.

95. *Clinical failure to complete an operating note*: *conclusions.* There was an obligation on consultant neurosurgeon Y to complete and sign a record of the operation. This was not done. This failure has led to many of the problems encountered by staff who later responded to this complaint and who had to act on incomplete information. I, therefore, uphold this aspect of Mr C's complaint that there was a clinical failing in not properly completing an operation note.

96. I recognise that a significant period of time had passed by the time this complaint reached local resolution and independent review. I find it disappointing that no action was suggested or taken to ensure that this acknowledged failure was an isolated occurrence. While the onus is on each surgeon to complete the operation note, the Board also have a duty to ensure necessary information is duly

recorded and filed. The Board have not provided any evidence that there is an appropriate system of checks in place to prevent this omission happening on other occasions.

97. *Clinical failure to complete an operating note*: *recommendations*. The Ombudsman recommends that the Board apologise to Mr C for the failure to ensure the necessary operating note had been completed.

98. The Ombudsman recommends that the Board provide evidence of implementation of a system for ensuring compliance with the requirement for an operating note.

(b)(v) Clinical failure to act promptly to resuscitate F when his condition declined on 25 December 1998

99. During the early discussion of his concerns, with consultant neurosurgeons X and W, Mr C became concerned that F's condition had deteriorated earlier on the 25 December than was his understanding. This was based on a statement by consultant neurosurgeon X, that F had deteriorated at 13:00. Mr C complained that if this was the case, he was with F at this time and nothing was done to resuscitate F for another two and a half hours. Mr C said that when action was taken at around 15:40 it was not 'aggressive treatment' as suggested by consultant neurosurgeon X in his report to GP 1 on 20 May 1999.

100. I address the time of F's decline in paragraph 121. In this I conclude that consultant neurosurgeon X was incorrect in stating F declined at 13:00. The adviser told me that F's condition first notably altered after 15:30 on 25 December 1998 and seriously altered at 15:.40 (see Appendix 3 for detail).

101. The neurosurgery adviser said that, at 15:40 pm, F developed profound hypotension and fixed unreactive pupils. He said that this sequence of events indicates severe brain stem dysfunction, which is most likely secondary to death of the brain stem tissue caused by restricted blood supply.

102. The adviser stated that appropriate resuscitation in this situation is restoration of a normal blood pressure. The records relating to this period indicated that F did not respond to intravenous fluids, and nor was there any response to drugs to raise the blood pressure. A failure to respond to these measures indicated that the brain stem had undergone irredeemable damage. The adviser said that attempts to move F for further investigation, such as CT scan would be inappropriate at this stage as this could have further worsened F's situation.

103. Mr C said that the only action that he saw from staff was that consultant neurosurgeon Y held F's head over the side of the bed and flexed his neck. The adviser suggested two possible explanations for this manoeuvre: consultant neurosurgeon Y might have been assessing the external drain to ensure it was working by altering head position or he might have been assessing the oculo-cephalic reflexes to assess brain stem function. These reflexes are assessed by turning the head from side to side or tilting the head backwards and are lost when there is severe brain stem damage. The adviser also commented that resuscitation in these circumstances would have required a calm and controlled approach and this may have appeared as inaction to Mr C. The adviser told me that he considered F did receive appropriate resuscitation following his cardiovascular collapse at 15:40.

104. *Clinical failure to act promptly to resuscitate F when his condition declined on 25 December 1998*: *conclusions.* The clinical treatment to resuscitate F following his decline at 15:40 was appropriate. I do not uphold this aspect of Mr C's complaint.

105. *Clinical failure to act promptly to resuscitate F when his condition declined on 25 December 1998*: *recommendation*. The Ombudsman has no recommendation to make.

(c) Failure to administer his complaint properly, in not giving it proper and timely consideration at local resolution

106. Mr C complained that the early attempts to resolve his concerns were inadequate and much of the information proved to be inaccurate and caused added anxiety. He complained that it was almost three and a half years after F's death before his complaint was properly addressed by the NHS complaints process and that this caused him considerable distress and expense. Mr C has also expressed concern that this delay meant his action was beyond the three-year time limit for legal action. He considered this to have been a deliberate delay by NHS staff.

The following paragraphs (107 to 113) are derived from the accounts given by Mr C. Where correspondence is referred to it has been verified except where expressly stated otherwise.

107. *Informal approach*: Mr C had some concerns about F's treatment on the night of 24 December 1998; in particular that the operation carried out on F appeared not to be the same procedure as on previous occasions. This could have meant that F had not received the correct treatment that might have prevented his death. He raised these matters with GP 1, who suggested that Mr C raise them directly with neurosurgeon Y and informed him that GP 2, who was a locum, had now moved to another area of the country. Neurosurgeon Y, however, had gone on long-term sick leave very soon after 25 December 1998, so instead it was arranged for Mr C to meet the locum consultant neurosurgeon X. This meeting was to discuss the events of 24/25 December 1998 but also to discuss any broader implications of F's condition as Mr C was concerned it might have had implications for other members of the family.

108. Neurosurgeon X told Mr C that F had suffered from an AVM. He described F's condition as non-typical of F's ethnic origin but, rather, a rare Oriental one, which was liable to re-bleed. Mr C asked why F had had no follow-up after his second episode, if his condition was rare, and was told that angiograms were too serious a procedure to carry out regularly. Mr C was concerned that this raised further questions about the lack of treatment F had received in the five years

between 1993 and 1998 and contradicted what he had been told by neurosurgeon Z that there was virtually no likelihood of a re-bleed.

109. Mr C raised these additional concerns with GP 1, who wrote to neurosurgeon W (the senior consultant at The Ninewells Hospital) on 7 May 1999 asking him to provide some further explanation for Mr C. Neurosurgeon W replied on 20 May 1999 and sent GP 1 a brief written review of F's notes from 1989 to 1998. This letter included a statement to the effect that F's condition suddenly deteriorated at 13:00 on 25 December 1998. As Mr C had been at F's bedside at this time with no indication that there was a change in his condition he was surprised at this statement and remained concerned that the review still did not answer his other concerns. GP 1 considered it was advisable for Mr C to discuss the matter directly with neurosurgeon W and a meeting was arranged around July 1999. Mr C expected to meet both neurosurgeons W and X, as he was concerned at the suggestion, previously made by neurosurgeon X, that F had a rare hereditary condition, particularly in the light of F's mother's aneurysm.

110. Mr C only met neurosurgeon W, who informed him that neurosurgeon X had been 'sacked' at the end of April 1999. Mr C asked neurosurgeon W a number of questions regarding F's treatment on 24 and 25 December 1998. In particular, he sought confirmation of F's craniotomy and clarification of the time F had deteriorated. Mr C said that neurosurgeon W confirmed that a craniotomy had been performed and that it was in F's notes that his condition had deteriorated at 13:00. Mr C expressed concern that, if that was the case then nothing had been done at that time to help F. Neurosurgeon W declined to comment further on this. Mr C then felt that neurosurgeon W became very defensive and gave him the impression there was something he wanted to hide. Mr C told neurosurgeon W that he wanted to see F's medical records but neurosurgeon W said that he was not entitled to see them. Mr C was not happy with the responses he had received and neurosurgeon W said Mr C would need to speak to lawyers to access F's medical records. Neurosurgeon W said he had nothing further to add and the meeting ended.

111. *Legal proceedings*: Mr C was not aware of his right to use the NHS

complaints procedure and was not made aware of it by neurosurgeons X, W, nor his GP (GP 1). He consulted a lawyer, who advised that it would be necessary to obtain an expert medical opinion from a neurosurgeon. Mr C spent the next two and a half years pursuing this legal route, in the course of which an expert neurosurgeon (expert neurosurgeon assessor) and an expert neuroradiologist (expert neuroradiologist assessor) were both called on to give reports. During this process Mr C discovered that there was no operation note available for the 24 December 1998.

112. The financial costs involved in pursuing this legal claim were prohibitive and Mr C had to abandon the legal action. At this point he wrote to the Prime Minister and the Scottish Executive Health Department to express his dissatisfaction with this outcome. He was advised of the NHS complaints procedure. His complaint passed to Tayside NHS University Hospital Trust (predecessor organisation to NHS Tayside Board) who accepted the complaint. Although it was now more than three years since Mr C had first expressed concerns about F's treatment, the Trust accepted the complaint as Mr C had never been informed of the complaints procedure. The NHS complaints procedure has a usual cut-off point of 12 months from the event.

113. *The local resolution stage of the NHS complaints process:* On 4 June 2002, Mr and Mrs C met complaints officer A and a member of the clinical governance staff to discuss the complaint. A meeting was arranged on 21 August 2002 with Mr and Mrs C, complaints officer A, consultant neurosurgeon V and consultant neurologist 1. Initially, Mr and Mrs C felt that this had been a very useful meeting. However, it subsequently proved impossible to agree a minute of this meeting. The handwritten notes of this meeting were not retained prior to the minute being agreed and Mr C felt that complaints officer A, consultant neurosurgeon V and consultant neurologist 1 were all unwilling to admit in writing what had been agreed at the meeting because they felt there was something to hide. Although a complete record could not be agreed, the limited record that was agreed contained a number of points, which are referred to elsewhere in this report. As this meeting had not resolved Mr C's issues and had in fact increased his dissatisfaction, it was felt by the Board that nothing more could be achieved by local resolution and he

was referred on to the next stage of the complaints procedure, the independent review.

114. Consultant neurosurgeon W's letter (May 1999) states that, at 13:00, F's blood pressure was 220/140 and dropped down to 80/40. F's medical records contain several entries for 25 December 1998 (see Appendix 3 for details). These include several references to a change in F's condition after 15.30 in the afternoon. An entry timed at 15.40 includes reference to F's blood pressure being 220/140. There is no other entry that day with this particular blood pressure reading.

115. In response to my enquiries, consultant neurosurgeon W commented that he had been asked by GP 1 to provide information to assist the family's understanding of the events surrounding F's death. He was not aware that the family were planning to make a complaint or he would have referred them to the complaints staff. He agreed that, in retrospect, Mr C would have been better served through the NHS complaints process.

116. Mr C was concerned that the, initially useful, meeting with complaints staff and consultant neurosurgeon V and neurologist 1 did not achieve any resolution because it was impossible to agree a record of this meeting. It is clear from the Board's complaint file that consultant neurosurgeon V was not happy to agree with Mr C's version of the meeting and Mr C also stated that he did not accept any of the several versions of the meeting supplied by the Board.

117. The NHS complaints procedure does not set any specific standard for record-keeping at meetings. In response to my enquiries, the Board said that there is no specific policy on retaining handwritten notes although it is common practice to retain these notes for future reference.

118. Since 1998, there have been a significant number of changes to the complaints procedure of the NHS in Scotland. The procedural changes are most significant to complaint headings (e) and (f) below. However, there have been other changes which are worthy of note here. NHS Tayside have significantly altered their clinical governance procedures for complaint handling and review.

The Board ensures that knowledge of the complaints process and communication skills are a key element of their induction programmes and on-going customer care training. I also note that the member of complaints staff involved in the August 2002 meeting left the Trust's employ shortly thereafter.

Failure to administer Mr C's complaint properly, in not giving it proper and timely consideration at local resolution: conclusions

119. It has never been possible to interview consultant neurosurgeon X, so I am not able to obtain any independent corroboration of his remarks regarding the nature of F's underlying condition but I have no reason to doubt Mr C's view and note than none of those involved in this complaint have sought to justify consultant neurosurgeon X's views. I consider that if consultant neurosurgeon X did make the remarks attributed to him then that was negligent. It was part of his duty of care to check the facts and such remarks do not reflect evidence of a detailed study of F's medical history. Neither did he provide Mr C with a full explanation of his view of F's condition.

120. It was not unreasonable of consultant neurosurgeon W to take the initial view that he was responding to a request from GP 1 to provide Mr C with information to help him understand why F had died. Informal resolution by staff involved remains an effective step prior to invoking the formal complaints procedure. However, the meeting between consultant neurosurgeon W and Mr C was unsuccessful and it was clear that Mr C had a number of complaints about F's care and treatment. In this situation the onus is on the doctor to inform Mr C of his ability to use the NHS complaints procedure and neither GP 1 nor consultant neurosurgeon W did so.

121. The information contained in the contemporaneous medical record did not correspond with the statement in consultant neurosurgeon W's letter and I conclude that the letter was wrong when it stated F's condition deteriorated at 13:00. I have no reason to think that this was anything other than a straightforward human error. However, I note that this error added to Mr C's perception that consultant neurosurgeon W did not provide him with the accurate information he sought and to his overall concerns about F's treatment.

122. I cannot comment on what effort consultant neurosurgeon W made to confirm the facts before writing his letter or when questioned by Mr C. I am concerned that, on this occasion and later at local resolution, statements were made about an operation for which there was no operation note and apparently without thought to seeking input from consultant neurosurgeon Y, who was still living locally and who would have been able to give a direct account. I am also concerned that consultant neurosurgeon W's straightforward, but important, error regarding the time of F's deterioration was allowed to go unchecked throughout the complaints process.

123. This concern is echoed by the neurosurgery adviser who commented that it was not clear why consultant neurosurgeon Y was not involved in the discussions at an earlier stage, as he would have been able to provide 'first-hand' information about the surgery that took place on 24 December 1998, in the absence of any written operation notes. Like the adviser, I am aware that consultant neurosurgeon Y was on sickness leave at the time Mr C had his discussion with consultant neurosurgeon W. Despite this, I find it difficult to comprehend why consultant neurosurgeon Y was not asked to be involved in these initial discussions or, if he was incapacitated by illness, why he was not given the opportunity to provide a written response to the questions raised by F's parents.

124. I conclude that it was initially appropriate for the consultants employed by the (then) Trust to try to address Mr C's concerns but that this response was poorly handled and lacked the necessary precision. Mr C was not referred to the complaints process and, when it became apparent that there were records missing and that there was a continuing problem, no consideration was given to involving consultant neurosurgeon Y. This resulted in serious maladministration in the early stages of complaint handling by the Board and I uphold this aspect of the complaint.

Failure to administer Mr C's complaint properly, in not giving it proper and timely consideration at local resolution: recommendations

125. The Ombudsman recommends that the Board apologise to Mr C for the failure properly to administer and advise him of the NHS complaints procedure.

126. The Ombudsman considers that the distress and expense caused to Mr C by this maladministration requires a degree of financial redress. This is addressed in the overall recommendation regarding the delays caused by failures in the complaints process at paragraph 156.

127. There is no specific recommendation the Ombudsman can make with regard to the failure to involve consultant neurosurgeon Y in the local resolution of this complaint. I would note the considerable value of involving those directly connected with events in achieving effective resolution to complaints. It is the expectation of the Ombudsman that this may include considering the involvement of former employees.

(d) Failure to administer and run the independent review process properly

128. On 1 December 2002, Mr C wrote to the convener requesting a review of his complaint. The letter was seven pages long, four pages of which concerned his dissatisfaction at the handling of his complaint so far. Mr C complained to the Ombudsman that the convener did not consider any of the issues he raised about the manner in which his complaint was handled. I note again that this aspect of his complaint formed almost half of his seven-page submission to the independent review.

129. In response to Mr C's objections to the limited terms of reference for the panel, the convener stated that she did not feel the panel could reach a conclusion about what had been said by whom at the meeting on 21 August 2002 but preferred to start afresh with a completely new and objective look at the treatment of F.

130. The guidance on the NHS complaints procedure, issued by the Scottish Executive Heath Department, states that, where a complainant is not satisfied with

the terms of reference for a panel, the convener's decision is final but that the complainant should be informed of his or her right to bring this disagreement to the Ombudsman. This did not happen in this case, as Mr C was not so informed.

131. Mr C complained, initially, that he was informed that consultant neurosurgeon Y would not attend the panel, and was aggrieved to find out at the last minute that he would be there. Mr C said that when he mentioned this to the panel the administrator told him that he had never advised Mr C that consultant neurosurgeon Y would not attend.

132. In her letter to Mr C dated 13 February 2003, the convener stated that she was writing with reference to a telephone call between Mr C and the administrator. She stated that, while it would be normal practice to interview the staff involved, this could not happen on this occasion. Mr C told me that the administrator had stated in his telephone call that consultant neurosurgeon Y would not be at the panel meeting. Mr C said that he, therefore, had been told consultant neurosurgeon Y would not attend.

133. I asked the Board for clarification and received a lengthy response, which stated that it was the view of the Tayside Health Council representative that the administrator did not make such a comment. I have a copy of the Health Council representative's meeting notes, which she provided to me. In these she recorded that the administrator informed Mr C that he had not told him consultant neurosurgeon Y would not attend. I note that there are a number of documents in the Board's complaint file in which the administrator expresses doubt about the attendance of consultant neurosurgeon Y, all of which are dated prior to the date on which the consultant was actually approached.

134. Much of this may appear to the impartial observer to be an irrelevant debate over who said what and when. However, given the lack of any previous input from consultant neurosurgeon Y into this complaint it is understandable that his sudden and unexpected appearance caused distress to Mr C.

135. Mr C also complained that the convener was unable to stay for the duration

of the day and left less than twenty minutes after Mr and Mrs C were called before the panel to give their evidence.

136. In response to my enquiries, the Board told me that the convener was in the unfortunate position of having another extremely pressing work engagement requiring her attention that afternoon. As she understood all of the background to Mr C's complaint and had heard consultant neurosurgeon Y's evidence, she felt she would be able to catch up with matters when the panel members met to discuss the draft report. The Board commented that the only alternative on the day would have been to postpone the meeting, which would have had a very serious impact on the commitments of everyone involved.

137. Mr C complained that the chair took many months (from 12 May 2003 to 13 February 2004) to produce the panel's report, while the time limit set by the NHS Complaints Procedure is 60 working days from the appointment of the panel.

138. There are many emails and letters on file, between the administrator, the chair and the assessors. It is clear that the assessors were excessively slow to respond to repeated requests for their report and responses to the chair's comments.

139. A particular cause of this delay was a protracted discussion of the impact of lack of follow-up on F's future prospects. Mr C also complained that the assessors' report clearly states that follow-up was optimal and best practice but that the panel did not make any recommendation on this. I have dealt with the need for follow-up between 1993 and 1998 in paragraphs 17-44. The complaint here is that the panel did not follow the clinical view of the assessors as to the need for follow-up.

140. The guidance on the NHS complaints procedure issued by the Scottish Executive Heath Department states that, where the panel disagree with a statement made by the assessors, they should refer to this in the report and explain why they disagree. The panel report did this and referred to the debate about whether 'on balance' F would have survived if he had had follow-up.

141. Mr C complained that he asked the panel to consider recommending repayment of his legal expenses for expert reports and legal fees but the panel declined to do so.

142. In response to my enquiries, the Board said that, having considered the matter, it would be appropriate in the circumstances to reimburse Mr C for his legal expenses and that they would do so on submission of receipts from Mr C. Mr C subsequently provided me with receipts for the expert assessors' reports, which have duly been paid by the Board. Mr C does not have receipts for the legal costs incurred in pursuing his legal claim (see paragraphs 147 and 157 in this connection). Both the Board's complaint file and the documents provided to me by Mr C contain letters to and from Mr C's lawyers, Mr C and the Board.

143. It is important to note that the independent review stage of the NHS complaints procedure was abolished in April 2005 following a lengthy consultation process. The current procedure allows complainants who remain dissatisfied, following local resolution, to bring their complaint direct to the Scottish Public Services Ombudsman. A number of reasons was identified by the consultation process for this change, including: length of time to process a complaint, perceived/actual lack of independence of the panel members, lack of control over the actions of the panel and lack of authority to bring about necessary changes – all of which were features in this case.

Failure to administer and run the independent review process properly: conclusion

144. The departure of the convener during Mr C's evidence is deeply regrettable. I am aware of the difficulties caused in attempting to reconvene a panel meeting and the time pressures that existed for panel members who did not receive any remuneration for this role and usually had other commitments. However, the regulations stipulate that the panel must be made up of three members, one of whom is the convener. Therefore, when the convener left, the panel was no longer properly constituted. I uphold Mr C's complaint of administrative failure, although I do not criticise the panel for adopting a pragmatic approach to the matter. I consider that this case illustrates one of the difficulties of the independent review process and note that, with the abolition of independent review, this problem will

not reoccur.

145. There was an excessive delay in producing the panel's final report. A significant amount of this time was attributable to delays by the assessors and protracted discussion of the conclusions of their report. I uphold the complaint of administrative delay.

146. With respect to the failure of the panel to follow the conclusions of the assessors I do not uphold this complaint, since the actions of the panel were taken in accordance with the NHS complaints procedure.

147. I commend the Board for their willingness to pay Mr C's legal expenses and acknowledge the difficulties for publicly accountable organisations when they pay un-receipted expenses. The Board have made it clear that they remain willing to repay Mr C's legal costs in full. In the absence of specific legal bills I have considered the volume of work that would have been involved in processing Mr C's legal claim and obtaining the several expert reports. I have applied the Solicitors Fee Scheme used by the Auditor of the Court of Session in Scotland to my estimate. This provided a figure easily in excess of the £1,400 estimated by Mr C. The Ombudsman, therefore, makes the recommendation (see paragraph 157) based on this research and calculation.

Failure to administer and run the independent review process properly: recommendations

148. The Ombudsman recommends that the Board apologise to Mr and Mrs C that they were incorrectly given the impression that consultant neurosurgeon Y would not be attending the panel and that one of the panel members was not present for all of their evidence.

149. As the process of independent review has been abolished the Ombudsman does not believe there are any useful recommendations to make with respect to the administrative failures identified, beyond an apology.

(e) Failure to exercise proper clinical judgment in not taking action on the conclusions of the independent review assessors

150. Mr C complained that the assessors reached a number of conclusions regarding clinical aspects of F's care and treatment but that the Board did not act on these. Mr C referred to the assessors' comments on the acknowledged lack of an operation note, failure by the SHO to refer GP 2's call to a consultant, the lack of clarity in F's medical records including contradictory descriptions of F's underlying problem and their view that optimal practice for F would have been annual MRI and possibly further angiogram. The Board failed to take action on any of these conclusions.

Failure to exercise proper clinical judgment in not taking action on the conclusions of the independent review assessors: conclusions

151. I have noted several of the assessor's conclusions already in this report (see paragraphs 22, 51 and 82) and I am concerned that, despite the fact that the local resolution investigation of the complaint had identified that F should have been followed-up with a scan every two years and that there was no note of surgery from 24 December 1998, neither the medical director nor the Chief Executive took any action to address these important clinical issues. I, therefore, uphold this aspect of the complaint.

Failure to exercise proper clinical judgment in not taking action on the conclusions of the independent review assessors: recommendations

152. The Ombudsman recommends that the Board apologise to Mr and Mrs C that clinical problems identified both at local resolution and by the assessors at independent review were not addressed by the Board.

153. The Ombudsman has made recommendations to address, where possible, the clinical problems identified. There are no further useful recommendations she could make with respect to this failure beyond the apology referred to in paragraph 152.

Summary of conclusions

154. While several clinical issues have been addressed in this report a more substantial part of the report deals with failures in communication in clinical and complaint handling issues. Mr C told me that, because no one was prepared to apologise for those errors that were identified, he could only assume that there is a policy to 'cover-up' errors made. I do not agree with Mr C's view but I acknowledge his reasons for thinking this.

155. Mr and Mrs C and F's extended family experienced considerable stress pursuing their concerns about F's treatment. I have upheld several clinical aspects of Mr C's complaint and found evidence of poor communication, leading to maladministration. I consider that this caused unnecessary additional distress and anxiety to Mr and Mrs C. I am also aware that it is now almost seven years since their son died.

156. In the light of these many difficulties, the Ombudsman recommends a sum of financial redress for the stress and time involved in pursuing this complaint, that is a payment of £200 per annum for the 6 years Mr C has been pursuing his complaint with the NHS - £1,200. In doing this she acknowledges that achieving financial redress was not Mr C's purpose in bringing this complaint.

157. In addition, the Ombudsman recommends that the Board repay Mr C the £1,400 he estimates he has spent in legal fees.

Summary of recommendations

158. Following the investigation of all aspects of this complaint the Ombudsman recommends that the Board:

i. apologise for the failure to ensure appropriate consideration was given to providing follow-up to F and apologise for not providing such follow-up;

ii. review their arrangements for case review and hand-over of a Consultant's caseload in the event of an unplanned cessation of employment. The Ombudsman requests that the Board provide her with evidence of this

review and the resulting (or existing) arrangement for such review and hand-over;

iii. apologise to Mr and Mrs C for the failure of the SHO to follow the protocol. It is recognised that these events occurred a number of years ago and, therefore, there is no further action that can be usefully recommended to prevent a reoccurrence of this breach;

iv. ensure that the failure in communication issues identified in this complaint are used in developing scenarios to be incorporated into their complaints awareness sessions;

v. apologise to Mr C for the failure to ensure the necessary operating note had been completed;

vi. provide evidence of a system for ensuring compliance with the requirement for an operating note to be completed;

vii. apologise to Mr C for the failure to administer and advise him of the NHS Complaints Procedure properly;

viii. apologise to Mr and Mrs C that they were incorrectly given the impression that consultant neurosurgeon Y would not be attending the independent review panel and that one of the panel members was not present for all of their evidence;

ix. apologise to Mr and Mrs C that clinical problems identified both at the local resolution stage of the NHS complaints process and by the assessors at independent review were not addressed by the Board;

x. pay a sum of £200 per annum for the six years Mr C spent pursuing his complaint - £1,200. In doing this she acknowledges that achieving financial redress was not Mr C's purpose in bringing this complaint;

xi. repay Mr C the £1,400 he estimates he has spent in legal fees.

Further Action

159. As noted in paragraph 16, the Board have been given an opportunity to comment on the draft of this report. They have said that they accept the recommendations and will act on them accordingly. The Ombudsman requests the Board to notify her when and how the recommendations are implemented.

20 December 2005

Appendix 1

Explanation of abbreviations used

Complaints officer A	The complaints officer who attended the meetings with Mr and Mrs C in 2002.
Consultant neurosurgeon Z	The consultant who operated on and treated F following his first two haemorrhages. He retired after F's second discharge and died before the events of December 1998.
Consultant neurosurgeon Y	The consultant who operated on and treated F following his third haemorrhage and who resigned due to ill health very shortly afterwards.
Consultant neurosurgeon X	The locum consultant who first discussed Mr C's concerns with him and who shortly thereafter ceased to work for the Board.
Consultant neurosurgeon W	The senior consultant who spoke with Mr C at his second visit to discuss his concerns.
Consultant neurosurgeon V	The consultant who met Mr C when his complaint was being investigated under the NHS complaint procedure – 21 August 2002.
Radiologist 1	The radiologist who reviewed F's MRI and MRA in September 2003.
Expert assessor neuro-radiologist	The consultant who wrote a private medical report for Mr C prior to a legal claim being lodged.

Expert assessor neurosurgeon	The consultant who wrote a private medical report for Mr C prior to a legal claim being lodged.
GP 1	The C family's GP (this description refers to the post not the specific post holder).
GP 2	The locum GP who attended F on 24 December, 1998.
Independent review convener	The person responsible for deciding whether or not a panel should be held and what its terms of reference should be. Also a member of the panel.
Neurologist 1	The doctor who spoke with Mr C when his complaint was being investigated under the NHS Complaints Procedure – 21 August 2002.

Appendix 2

Glossary of medical terms

Aneurysm	An abnormal swelling of an artery. Eventually over several years this may tear and burst with the sudden escape of blood.
Angiogram	An x-ray test that is used to make pictures of blood vessels. A tube is passed through blood vessels and a special dye is injected to give more details on the picture. This is usually the most accurate test for vascular malformations.
Arterio Venous Malformation/AVM	See vascular malformation below.
Cavernoma	A common term for a cavernous malformation a small round cluster of abnormal enlarged blood vessels without any brain tissue between them. These vary in size between a few millimetres to a few centimetres.
Cavernous Haemangioma - also known as Cavernous Angioma	A vascular tumour composed of large dilated blood vessels and containing large blood filled spaces.
Cerebellum	Portion of the brain filling most of the skull behind the brain stem and below the cerebrum, it approximates an orange in size and consists of two hemispherical lobes.
Cerebrum	The largest part of the brain, consisting of two lobes, the right and left cerebral hemispheres.

Cerebro Spinal Fluid (CSF)	The serum-like fluid that circulates through the ventricles of the brain.
Craniectomy	An operation to remove a piece of bone from the skull and expose the brain underneath. After the operation the bone is not replaced.
Craniotomy	An operation to open up the bones of the skull to expose the brain underneath. After the operation is completed the bone is replaced.
CT scan	Computed tomography – a special type of x-ray of the brain which involves the patient lying still on a couch inside the scanning machine. Often used as the first test for detecting a malformation or to investigate a suspected bleed in the brain.
Dural	The outermost (and toughest) of the 3 meninges.
Elective	Pre-arranged, non-emergency.
Foraminotomy	Operation to relieve pressure on nerves that are being compressed by the bones of the vertebrae of the spine.
Glasgow coma score	Widely used scoring system used in quantifying level of consciousness following traumatic brain injury.
Haematoma	Blood clot
Haemorrhage	Bleed.
Histology	The microscopic structure of tissue.
Hydrocephalus	An abnormal accumulation of cerebro spinal fluid (CSF) in

	the brain.
Laminotomy	Surgical separation of the vertebrae forming the upper part of the spinal column.
Meningeal	Relating to the meninges membranous layers of connective tissue that envelop the brain and spinal cord.
MRI scan	Magnetic resonance imaging. This scanning uses a combination of a strong magnet procedure, radiowaves and a computer to produce detailed pictures of sections of the body. This is the most accurate test for a cavernous malformation.
Neurosurgeon	A surgeon who treats disorders affecting the brain, spinal cord, nerves and spine.
Neurologist	A neurologist is a medical doctor or osteopath who has trained in the diagnosis and treatment of nervous system disorders, including diseases of the brain, spinal cord, nerves, and muscles.
Neuroradiologist	A doctor trained in radiology who specialises in creating and interpreting pictures of the nervous system. The pictures are produced using forms of radiation such as x-rays.
Ophthalmology	Medical practice relating to the eye.
Oculo-cephalic reflex	The involuntary movement of the eyes when the position of the head is altered. The lack of this response may indicate a high level of brain damage.
Pathology	How a particular condition presents itself.

Posterior Fossa	A dip on the inside, back portion of the base of the skull, near the cerebellum part of the brain.
Posterior Fossa Decompression and Evacuation	An operation performed to relieve pressure on the brainstem and remove any blockage.
Registrar	A registered doctor who is undergoing a training programme in a chosen specialty prior to applying for a consultant post.
Rongeurs	Heavy-duty forceps for removing small pieces of bone.
Senior House Officer	A junior doctor, with two years post-qualification experience.
Vascular	Relating to, or containing, blood vessels.
Vascular Malformation (AVM)	Abnormal arrangements of some of the blood vessels in the brain. There are several types affecting different parts of this network – an AVM affects an artery.
Ventricule/Ventricular	Interconnecting cavities of the brain.

Appendix 3

A detailed chronology of the events of 24 and 25 December 1998

This is derived from the records and correspondence that have been reviewed. Where the time of an event has been quoted in several entries but not formally documented in contemporaneous records, a 'best estimate' has been made, based on available information.

24 December 1998

16:10	F was well and spoke to Mr C on his mobile phone.
16:20	F became unwell complaining of headache.
16:20	Mrs C contacted the general practice by telephone requesting that the GP attend on a home visit to assess her son.
16:20	Mrs C contacts her husband on his mobile phone to advise him that F is unwell and that the GP has been contacted.
16:40	Mrs C calls the GP again and is advised that he is on his way.
17:10	Mr C arrives home and finds F unwell with headache and vomiting. Mr C's descriptions of F's appearance include reference to him being 'drowsy'.
17:20	F is assessed by locum GP 2. GP 2 had received Mrs C's initial telephone call at the local community hospital. En route to F's home he had called in at the general practice in order to collect F's records. GP 2 calls the Neurology Department at The Ninewells Hospital to discuss F's condition and speaks with the on call Neurosurgical SHO. It is agreed that F should be admitted to Perth Royal Infirmary for observation.
17:37	Ambulance service received a call to attend F's home.

17:52	Ambulance arrives at F's home.
18:00	GP 2 documents his assessment in a handwritten note for the receiving doctor at Perth Royal Infirmary and notes that F's Glasgow coma score was 14/15.
18:05	F leaves the family home by ambulance for Perth Royal Infirmary accompanied by his mother and followed by his father, travelling by car. Ambulance records show that F's coma score was 15/15.
18:24	An undated neurological observation chart relating to F's care shows that he arrived in the Accident and Emergency Department at Perth Royal Infirmary at 18:24 and that on arrival he was in deep coma (Glasgow coma score 3/15). The record suggests that F was rapidly intubated and his blood pressure brought under control. A subsequent timed entry suggests that transfer to The Ninewells Hospital was initiated at 19:30.
18:40	F's father arrives in the Accident and Emergency department at Perth Royal Infirmary and is informed that his son's condition has significantly deteriorated such that he requires intubation and ventilation to support his breathing.
20:00	F is transferred to The Ninewells Hospital by ambulance.
20:20	F's father meets consultant neurosurgeon Y.
20:30	Anaesthetic record indicates that F underwent CT scan of the brain. Following the scan consultant neurosurgeon Y spoke to F's parents.
20:55	The anaesthetic records indicate that F arrived in theatre.

21:10 The anaesthetic record shows ‘K to S’. The neurosurgery adviser told me that he would interpret this comment as being an abbreviation for ‘knife to skin’ which is a term commonly used to indicate the start of the operation following initial positioning and preparation of the patient.

21:30 A case note entry by the SHO (made in the operating theatre) records that F underwent the operation of posterior fossa exploration to evacuate the intracerebellar haemorrhage and insertion of an external ventricular drain.

22:45 The anaesthetic observation record ends at 22.45.

22:50 Mr C said that he saw consultant neurosurgeon Y leaving the hospital. He was in everyday clothes not dressed for theatre.

23:00 pm F was transferred to the Intensive Care Unit still intubated and ventilated by 23:00 when nursing observations start. A section entitled ‘skin integrity in ward’ describes ‘surgical wounds only’. Routine observations appeared satisfactory.

25 December 1998

Records of overnight care in the Intensive Care Unit suggest F’s condition was stable.

07:00 The left pupil was noted to be unreactive.

12:00 F was noted to have developed a chest infection.

15:30 The Intensive Care records suggest that F developed cardiovascular instability in that he became tachycardic (heart rate 180 – 200 bpm) and hypertensive (200/130). Consultant neurosurgeon Y was contacted by telephone and informed of this change.

15:40	F's condition acutely deteriorated. His blood pressure had acutely fallen to 80/40 and this was associated with the development of fixed unreactive pupils. The records suggest that this event occurred whilst consultant neurosurgeon was being informed of the earlier change in F's condition. Entries by the SPR on anaesthesia indicate that attempts to elevate F's blood pressure with intravenous fluids (Gelofusine) and drugs (Methoxamine) were unsuccessful. It is also noted that his oxygen saturation was low and that urinary output had fallen indicating poor working of the kidneys. These attempts at resuscitation were unsuccessful.
16:40 (approximately)	Consultant neurosurgeon Y spoke to F's parents and informed them of the gravity of the situation and that nothing further could be done to help F.
17:19	F was declared dead. The procurator fiscal's office was subsequently contacted regarding the death and did not feel that any intervention on their part was needed.