D E T E R M I N A T I O N

of

SHERIFF JAMES A FARRELL

In Fatal Accident Inquiry in terms of the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976

Into the Death of

WALLACE PATRICK HENDRY

Parties to the Inquiry:

Procurator Fiscal Depute:	**Carey Henderson**
Family of the Deceased:	**Mrs Haldane, Advocate**
Lothian Health Board:	**Mr Stephenson, Advocate**
And in addition as from 18 February 2007:	
Dr Stevens:	**Mrs Mary Robertson, Solicitor**
Fife Health Board:	**Mr Fitzpatrick, Advocate**

EDINBURGH, February 2008

The Sheriff, having resumed consideration, determines as follows:-

1. Section 6(1)(a)

Mr Hendry died in Glenrothes Hospital, Glenrothes on 6 August 2003 at or about 14.14 hours. There was no accident that resulted in the death taking place.

2. Section 6(1)(b)

The immediate cause of death was bronchopneumonia.

The death was probably contributed to by immobility and general debility associated with the consequences of a series of cerebro-vascular events suffered by Mr Hendry on and after 29 January 2003.

3. Section 6(1)(c), (d) and (e)

There are no circumstances to be set out in respect of these provisions.

My Determination in this Inquiry is entirely formal. Such a determination is the course which the parties, with the exception of Mrs Haldane, counsel for Mr Hendry's family, invited me to follow.

Mrs Haldane submitted that there were two sets of circumstances which ought to be treated as causes of Mr Hendry's death, that reasonable precautions might have been taken to avoid his death, that defects existed in the system of working at Edinburgh Royal Infirmary and Glenrothes Hospital which contributed to the death and she also made submissions in relation to record-keeping, aspects of communication between medical staff and members of Mr Hendry's family, especially his widow and to the apparent absence of a treatment plan after Mr Hendry had been transferred to Fife.

The first set of circumstances which ought to be treated as a cause of Mr Hendry's death, and which might properly be described as an accident, occurred, according to Mrs Haldane, at Edinburgh Royal Infirmary. Mr Hendry had been admitted to Edinburgh Royal Infirmary for elective surgery to replace his Aortic valve. Without such surgery it had been estimated that his life expectancy was between one and five years. During the concluding stages and minutes of the operation on 29 January 2003, and indeed when the replacement surgery had been completed, but while Mr Hendry was still connected to the ventilating machine and therefore dependent upon that machine for oxygenation of his brain, part of the system connecting patient and ventilating machine inadvertently became disconnected. The duration of the disconnection, and the extent of the disconnection throughout the period of disconnection, were matters in dispute. It was not however in dispute that electronic systems and Mr Hendry's appearance and chest movements, or rather lack of them, indicated that disconnection to some extent had taken place. Within hours of the operation being concluded it was apparent that Mr Hendry had suffered some form of brain damage. In Mrs Haldane's submission the evidence showed that disconnection from the ventilator had caused Mr Hendry to sustain general and diffuse damage to his brain which rendered him immobile, a state from which he never recovered. Whilst acknowledging that during the weeks and months to come before his death on 6 August 2003 Mr Hendry almost certainly sustained strokes and further damage to his brain, it was Mrs Haldane's contention that the injury to the brain caused by the accidental disconnection from the ventilator set in train the events which eventually

resulted in widespread and continuing immobility, debility, bronchopneumonia and death.

There was another explanation for the brain damage suffered by Mr Hendry at the perioperative stage. In the course of aortic valve replacement surgery it is a recognised risk that calcium debris may be located at the valve site and might be dislodged during surgery with associated risk of a stroke. In Mr Hendry's case this was anticipated and the risk of stroke assessed and explained to him. In the event the extent of calcium debris present at the valve site was discovered to be greater than expected. The nature of the surgery involved is such that dislodgement of some of the calcium debris is unavoidable. Stringent measures were in place to prevent the dislodged debris entering the blood circulation system. However by the very nature of the procedure involved these measures were not, and could not be, fool proof. In the event of such debris entering the bloodstream it is termed an embolus, and should it enter a cerebral artery will result in a stroke, ie, "the sudden onset of a focal neurological episode". On the evidence before me I am satisfied that an embolitic stroke sustained in the course of aortic value replacement surgery is not an accident. I understood that to be a view accepted by Mrs Haldane. I should, of course, make it clear that Mrs Haldane accepted that Mr Hendry may also have sustained an embolitic stroke at the perioperative stage. However it was her contention that the accidental disconnection of the ventilator had caused widespread damage to the brain at the perioperative stage which rendered Mr Hendry more vulnerable to further cerebral insults, immobility and was, accordingly, a cause of death. An embolitic stroke alone would, in her submission, have probably been survivable.

The first issue to be resolved, therefore, was whether Mr Hendry had sustained general and diffuse brain damage because of the admitted inadvertent disconnection from the ventilator, or had suffered an embolitic stroke in the course of aortic valve replacement surgery, or both.

I deal first with the contention that Mr Hendry sustained brain damage because of the disconnection from the ventilator. It ought to be noted that this was a matter which was highlighted at the earliest opportunity by the anaesthetist in charge, Dr Dornan, who, in three different formats, noted it as a "critical incident". In submission Mrs

Haldane observed that Dr Dornan spoke in evidence to different accounts of precisely how, when and at what stage in procedure the disconnection occurred. In my view Mrs Haldane's observations are well-founded in this respect. There was also a lack of clear evidence as to how long the disconnection lasted, whether it was total or partial, and if both, the relative durations. Dr Dornan also gave evidence as to what might be the length of time a person might be without ventilation and not sustain brain damage. I also heard evidence from several independent expert witnesses on this point including Dr Bamford, Consultant Neurologist, Drs Paul, Scott and Professor Kneeshaw, Consultant Anaesthetists and Professor Bell a Neuropathologist. Opinions varied on this question but all the witnesses in relation to this issue did seem to agree that during the critical incident there may have been some continuing ventilation for Mr Hendry and this at a stage where shortly beforehand he had been deliberately hyper oxygenated. On this chapter of the evidence I concur with Mr Stephenson's submission to the effect that "It is unnecessary to try to decide which of the various estimates is correct. For present purposes it is sufficient to note that none of the medical witnesses expressed the opinion that the period of partial ventilation must inevitably have caused damage to Mr Hendry's brain." My position therefore having regard to the eye-witness account of the episode of disconnection, and the expert evidence of its likely effect, is that I could not be satisfied that the period of non-ventilation because of disconnection was the likely, or probable, cause of Mr Hendry's perioperative brain damage. In addition, there is of course, the evidence of the CT scan taken very shortly after the operation and Mr Hendry's observed post-operation condition which was clearly one of unilateral deficit. These were some of the factors which led Dr Bamford and Professor Bell to conclude that Mr Hendry had sustained an embolitic stroke with classic focal damage, rather than general and diffuse brain damage, at the perioperative stage. These considerations fortify me in my conclusion that the episode of disconnection from the ventilator did not cause Mr Hendry's perioperative stroke, or indeed the subsequent brain damage which he sustained.

In the course of reaching the above conclusion it is apparent that I favour the embolitic mechanism as the cause of Mr Hendry's perioperative stroke. In endeavouring to summarise my position I do not think I can improve upon the contents of paragraph 29 of Mr Stephenson's written submission "During or shortly

after his cardiothoracic surgery on 29 January 2003 Mr Hendry suffered a stroke. The probable mechanism was embolitic. This is a known risk of the surgery undergone by Mr Hendry. The most likely cause of the stroke is that particles of calcium from his aortic valve passed into the blood supply to Mr Hendry's brain where they blocked the anterior cerebral arteries or branches thereof. Thereafter in the weeks and months following upon his surgery Mr Hendry suffered further distinct events associated with atrial fibrillation and causing additional damage to his brain. The anaesthetic accident occurring towards the end of Mr Hendry's time in theatre on 29 January 2003 did not contribute to any of these events." On the evidence before me it is not possible to say whether any causal link existed between the embolitic stroke at the perioperative stage and the subsequent episodes of brain damage, extensive immobility and bronchopneumonia. Nor is it possible to exclude such a link. What is beyond doubt is that the embolitic stroke was the first in a chain of events which culminated in Mr Hendry's death.

The second set of circumstances which, in Mrs Haldane's submission, ought to be treated as a cause of Mr Hendry's death was the withdrawal of nutrition for a period of approximately 27 days prior to his death in Glenrothes Hospital on 6 August 2003. Mrs Haldane further submitted that the withdrawal of nutrition was inappropriate. On the evidence before me it would appear that Mr Hendry did not recover mobility post operation and was removed to the Victoria Hospital in Kirkcaldy on 18 February 2003. A tracheostomy was put in place to aid spontaneous breathing, and a nasogastric tube for feeding. Mr Hendry was unable to communicate and was completely dependent on nursing care. On 20 February 2003 Mr Hendry was noted to be aspirating bile, a problem which had been present when he was still a patient at Edinburgh Royal Infirmary. Problems were encountered with food being regurgitated via the tracheostomy, and on 19 March 2003 a percutaneous endoscopic gastrostomy (PEG) tube was surgically inserted. For the purpose of that treatment a certificate of incapacity was completed on that date in terms of section 47 of the Adults with Incapacity (Scotland) Act 2000. The certificate authorised medical treatment for one year since Mr Hendry's incapacity was considered likely to continue indefinitely. It was a matter of agreement that the issue of Mr Hendry having ever entered a vegetative state, or persistent vegetative state, was not one for consideration at this Inquiry. On 23 May 2003 Mr Hendry was transferred to Ward 3 at Glenrothes

Hospital for continuing nursing care. Feeding continued via the PEG and this remained the case until his death. During the time at Glenrothes there were occasions when it appeared that Mr Hendry was able to some extent to communicate with his wife, but it is also plain that he suffered further brain damage, most probably as a result of atrial fibrillation. Feeding continued to be problematic. Mr Hendry's tolerance of feed was unpredictable, his liquid, or bolus, nourishment being variously retained, vomited or aspirated. The latter two responses created a risk of asphyxiation which was a source of continuing anxiety for the medical team, which included Dr Stevens, in charge of his care. By 7 March 2003 Mr Hendry had developed a severe chest infection. This was treated with antibiotic medication and suction to remove secretions as required. By 12 March 2003 Dr Stevens formed the view that Mr Hendry's death was imminent. Dr Stevens is a general practitioner who was also employed as a Clinical Assistant at Glenrothes Hospital dealing with care of the elderly. He worked in this capacity under the supervision of a resident consultant and locum consultant, who were also of the opinion that Mr Hendry's death was imminent. At this juncture Dr Stevens was of the opinion that full nutrition, along with medication, should cease, the former because Mr Hendry was unable consistently to retain it and because of the danger of aspiration and asphyxiation, and the latter because it was ineffectual. On the same day, 12 March 2003 Dr Stevens advised Mr Hendry's son of the proposed course of action and obtained his agreement thereto. Regrettably Mrs Hendry was not present at this discussion. Although full nutrition was stopped it is important to note first, that some nutrition in the form of glucose added to water continued to be provided, and second, that the possibility of recommencing full nutrition was never excluded from consideration. As late as 4 August 2003 the notes show that recommencement of feeding had been considered and rejected. Two independent experts with specialist knowledge and experience of care of the elderly, and end of life decisions, Dr Mackenzie and Dr Shaw produced reports and gave evidence. Both agreed that the medical notes supported the conclusion reached by the Glenrothes medical team that by 12 July 2003 Mr Hendry's death could be judged to be imminent. Neither of them criticised the decisions to withdraw treatment and full nutrition. Neither of them considered that these actions, in the circumstances, contravened the relevant GMC and BMA guidelines. In his report at page 7 Dr Mackenzie concludes "In Mr Hendry's case, antibiotics were withdrawn when there had been no evidence of clinical improvement. Artificial

feeding was discontinued because of copious vomiting by the patient, but water, fortified by a glucose supplement, continued to be provided until the end of his life. In my opinion based upon my review of the medical and nursing records, all appropriate care was given to Mr Hendry whilst he was an in-patient in Glenrothes Hospital. It is also my opinion that Mr Hendry's clinical state, as described in the notes by Dr Stevens and confirmed by Dr Ghosh, were such as to justify the decision to withdraw active treatment. Whilst it was correct to institute life sustaining treatment when Mr Hendry became acutely ill on 7 July the appropriateness of continuing such treatment had to be reviewed in the context of changing circumstances and a failure of response."

In my opinion the withdrawal of full nutrition in the circumstances set out *supra* was not a cause of death, but may properly be regarded as a factor relevant to the time of death. On one view it may have accelerated it. However, on another, it may have postponed it to the extent that it avoided the risk of sudden traumatic death as a result of aspiration and asphyxiation. As for debility, again on one obvious view withdrawal of nutrition may have been a contributory factor, but in the view of some of the medical witnesses a proper assessment might be that debility resulting from immobility and infection caused the inability to retain nourishment and thereby the debility became self-perpetuating.

On the view which I have taken of the evidence there are no circumstances to be set out in respect of paragraphs (c), (d) and (e) of section 6(1) of the 1976 Act. Mrs Haldane did make submissions in respect of the quality of recording of events at Edinburgh Royal Infirmary and Glenrothes Hospital, and recording of decision-making at Glenrothes in respect of the withdrawal of nutrition and medication, and the absence of any record of a treatment plan. She also criticised the nature and quality of communication between medical staff and Mr Hendry's family and the recording thereof both at Edinburgh Royal Infirmary and Glenrothes Hospital, but particularly at the latter. These might have been matters germane to (e) had I accepted Mrs Haldane's submissions as to what were the causes of death. Since I have not accepted Mrs Haldane's submissions then (e) has been superseded. Nonetheless I think I ought to say something in relation to the issue of communication between family, especially Mrs Hendry, and medical staff at Glenrothes. A close scrutiny of nursing and medical

notes does disclose substantial contact between 7 July 2003 and 28 July 2003. Mrs Robertson, Solicitor for Dr Stevens has produced a tabulated extract from these notes which discloses ten instances of contact between those dates. A qualitative assessment of that contact is impossible at this juncture. There can be no doubt however that Mrs Hendry felt she was not kept fully informed and generally felt her husband had been let down by the NHS, something which was noted by medical staff at the time. Again it is impossible to say to what extent Mrs Hendry in an extremely stressful situation was able to absorb, appreciate and retain all that was being conveyed to her. I simply conclude by observing that medical and nursing staff must be aware of the need to ensure as best they can that critical advice and information is conveyed to, and understood by, family members in end of life situations, and that this is done in a sympathetic manner which will require to be adjusted to take account of the particular case and personalities involved.