

DETERMINATION

of

SHERIFF JAMES A FARRELL

In Fatal Accident Inquiry In Terms Of The Fatal Accidents and Sudden Deaths

Inquiry (Scotland) Act 1976

into

The Circumstances of the Death of ANNIE MERCER

Note

Evidence in this Fatal Accident Inquiry was heard over five days and the inquiry concluded on 6th August 2010 with submissions on behalf of the parties, namely, the Crown represented by Mr Keane, Procurator Fiscal Depute, Lothian Health Board, represented by Mr Fitzpatrick, Advocate and Dr Rebecca Devine, represented by Mrs Donald, Solicitor-Advocate. As may be seen from the circumstances of the death which I have set out *infra* under reference to the five subheads of section 6(1) of the Act, my determination in this case is substantially what is sometimes described as a formal determination. I do, however, have some observations to make in terms of section 6(1)(e) and in order to render those observations intelligible I think it will be helpful if I briefly recite the factual background and the events of September 2007 as I found them to be established by the parole evidence and the contents of the Minute of Admissions entered into by the parties.

Background

Annie Mercer was born on 26th July 1936 and was aged 71 years at the time of her death. She suffered from rheumatic fever when she was young and later, when she was in her sixties, underwent surgery to replace her aortic and mitral heart valves. The aortic valve was replaced in 1996. In 2001, Mrs Mercer was found to have atrial fibrillation. The treatment for this condition was long term anticoagulation therapy provided by the drug Warfarin. In 2005, Mrs Mercer's mitral valve was replaced and her tricuspid valve was repaired. In March 2007 Mrs Mercer was suffering from back pain and she also hurt her ankle, as a result of which her mobility was restricted which caused her to become depressed. She suffered significant weight loss and was investigated for possible myeloma and pancreatic cancer.

September 2007

On 1st September 2007, Mrs Mercer was found by her daughter to be unwell and confused, and arrangements were made to have her conveyed by ambulance to Borders General Hospital where she was admitted to ward 4a, a general medical acute admissions ward, initially under the care of Dr Maclaren, Consultant Physician. The initial suspicion was that Mrs Mercer had suffered a stroke, and her long-term anticoagulation therapy with Warfarin was therefore withheld. Investigations did not confirm, or exclude, stroke, and diagnoses of pneumonia, delirium and endocarditis were kept under review. Mrs Mercer was then assigned to the care of Dr Neary, Consultant Cardiologist. She was treated for endocarditis. Warfarin was restarted, but on 7th September it was decided to substitute Warfarin with another drug Enoxaparin. The reason for the change in medication is as follows. Mrs Mercer continued to need anticoagulant treatment because of her perceived risk of a stroke. She also needed direct administration of antibiotics to her heart because of probable endocarditis. The procedure for administration of antibiotics directly in this way would be via a Hickman Line which is an invasive procedure which carries certain obvious risks when a patient's blood has been thinned. Warfarin is a blood thinner with a long half life, that is to say it is slow to take effect and equally slow to cease to have effect. Enoxaparin, which is administered by injection, is a blood thinner, or

anticoagulant, which can be started and stopped at short notice. The use of Enoxaparin therefore allows the Hickman Line to be inserted whilst minimising the risks attendant on such an invasive procedure and also minimising the duration of exposure to risk of stroke. The decision to switch temporarily from Warfarin to Enoxaparin was taken at the ward round on 7th September. Dr Devine, who was then a Foundation Year 1 doctor, that is to say the most junior category of qualified doctor, was present for part of the discussion at Mrs Mercer's bedside but not for its entirety. On Dr Neary's instruction she noted the decision to change from Warfarin to Enoxaparin. This appears in Mrs Mercer's notes which are number 17 of Process. The appropriate prescription dosage formula for Mrs Mercer was 1mg of Enoxaparin for 1kg of patient body weight, this dose to be administered twice per day. Dr Neary did not specify the prescription dose formula at the ward round but it is well known by medical staff and was known by Dr Devine. Having noted the decision to change from Warfarin to Enoxaparin, it was Dr Devine's responsibility to ascertain Mrs Mercer's weight, apply the formula and note the dose on the drugs kardex, which is located in the vicinity of each patient's bedside. The kardex constitutes the instruction to those charged with the administration of drugs to patients as to what drugs are to be administered, the dose and the route, that is to say the mode of administration, in this case subcutaneous injection. Dr Devine knew Mrs Mercer's weight. She knew the formula to be applied. She ought to have entered 60mg and selected two points in time during the day for administration. Instead, as may be seen from page 5 of number 17 of Process, she entered 120mg and selected 0800 and 1800 for administration. Dr Devine described this as an inexplicable error on her part. The first dose of Enoxaparin was given to Mrs Mercer by staff nurse McLean at about 1800 on Friday 7th September. At around 0800 on Saturday 8th September Mrs Mercer received a second dose of Enoxaparin again from staff nurse McLean. At about 1015 that morning, Mrs Mercer was seen during the ward round conducted by Specialist Registrar, Dr Inglis. Nothing was highlighted to Dr Inglis by the nursing staff. There was nothing in Mrs Mercer's behaviour or condition that would have raised concern. Had Dr Inglis been performing a week day ward round she would routinely have looked at the drugs kardex. At weekends, however where patient's observations are stable and in the absence of any nursing concerns, the kardex would not normally be checked. Dr Inglis is not sure if she looked at Mrs Mercer's drug kardex on the morning of 8th September 2010. At about 1800 on that date, staff nurse

McLean administered the third 120mg dose of Enoxaparin. Staff nurse McLean was aware that 120mg of Enoxaparin was a high dose but considered it not to be so high as to be outwith her experience. On Sunday 9th September, Mrs Mercer's consciousness level was noted to be markedly reduced. A diagnosis of intra-cerebral bleeding was made and this was subsequently confirmed by a CT brain scan. Thereafter after extensive discussions with the family it was decided that Mrs Mercer's prognosis was poor and so she was kept comfortable for the last few days of her life. On 12th September, Dr Neary reviewed the drugs kardex and realised that Mrs Mercer had received too much Enoxaparin. He discussed this with his junior colleagues including Dr Devine. On 13th September at 1910 hours Mrs Mercer died.

On 18th September 2007 an autopsy was performed on Mrs Mercer by Professor Kernbach-Wighton and Dr Arango. Their report is number 3 of Process. Professor Kernbach-Wighton also produced a supplementary report which is number 4 of Process. Professor Kernbach-Wighton also gave evidence. His parole evidence was clear and unequivocal. The overdose of Enoxaparin in his opinion could not be said to have caused Mrs Mercer's intra-cerebral haemorrhage; nor could it be said to have increased the risk of Mrs Mercer suffering an intra-cerebral haemorrhage; nor could it be said to have affected the extent of Mrs Mercer's intra-cerebral haemorrhage once that haemorrhage had started from whatever cause.

Determination in terms of section 6(1)

1. Section 6(1)(a)

Annie Mercer died at 1910 hours on 13th September 2007 at Borders General Hospital, Melrose.

2. Section 6(1)(b)

The cause of death was intra-cerebral haemorrhage following previous heart surgery.

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

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

4. Section 6(1)(e)

A fact relevant to the circumstances of Mrs Mercer's death was Dr Devine's prescription error. She readily acknowledged that she had been provided with the appropriate training, knowledge and access to information, which would have enabled her to enter the correct prescription of Enoxaparin on the drug kardex in respect of Mrs Mercer. She described her error as inexplicable. Such errors are thankfully rare. By reason of the inexplicable nature of such an error, the steps which may be taken to prevent repetition in the future are limited. Bearing that qualification in mind, I recommend that consideration be given to the following measures as a means whereby errors of the kind in this case might be avoided, and where, in the event of an error being made, it might more readily be detected and its consequences avoided, or at least mitigated.

First, in the case of acute emergency patients, medical staff should be encouraged to scrutinise drug kardexes on a daily basis even where there has been no change in the patient's clinical condition.

Second, in the case of drugs where dosage is determined by reference, *inter alia*, to the patient's weight, consideration should be given to devising a form of drug kardex which would include a section setting out the calculation whereby the dosage has been arrived at. This would serve to focus the prescriber's mind on the precise terms of the appropriate prescription formula. Furthermore, in the event of the prescriber nonetheless making an error, then that error would be more readily apparent to the administrator of the drug, and also to anyone scrutinising the drug kardex and in particular to those conducting the daily ward round as adverted to *supra* in the case of acute emergency patients.

Selkirk

August 2010