

**INQUIRY UNDER THE FATAL ACCIDENTS AND SUDDEN
DEATHS INQUIRY ACT 1976 INTO THE DEATH OF MOIRA
PULLAR**

S H E R I F F ' S D E T E R M I N A T I O N

**UNDER THE FATAL ACCIDENTS AND SUDDEN DEATHS INQUIRY
(SCOTLAND) ACT 1976**

INTO THE DEATH OF

MRS MOIRA PULLAR

Held at AIRDRIE on: 14 - 16 November 2005

SHERIFF'S DETERMINATION

AIRDRIE: 8 December 2005

NOTE:

At the Inquiry, which was held on 14, 15 and 16 November 2005 the Crown were represented by Miss Janice Green, Procurator Fiscal Depute and Monklands District General Hospital staff and administration were represented by Mr Ian Crerar.

Mrs Pullar's family, I was informed, had been unsuccessful in their attempt to obtain Legal Aid and therefore had no legal representation. One of Mrs Pullar's daughters, Miss Laura Pullar, asked questions on behalf of the family and at the end of the proceedings made a very full and thorough submission on the matters which the family wished me to consider in this Determination.

In an Inquiry of this complexity where there are two very large volumes of hospital records to be considered and where it was at one time suggested that a number of separate matters involving different personnel might have contributed to Mrs Pullar's death, it is unfortunate that the family could have been disadvantaged by not being able to be legally represented.

Miss Green however ensured that the case was fully presented to the Court and Miss Pullar's questioning of the witnesses was of such a high standard that I hope that Mrs Pullar's other relatives are satisfied that any point which they wished made was brought to the attention of the Inquiry. I am very grateful to Miss Green and Mr Crerar for their professional approach to this case and for the thorough and careful way in which the evidence was presented and dealt with and I am particularly grateful to Miss Laura Pullar for the excellent way in which she put forward the points which the family wished explored and, in particular, for the moderate way in which this was done.

It must have been an exceptionally difficult and emotional task for her to undertake at short notice, as I understand that it was only a short time before the Inquiry date that it was known that their lawyers had withdrawn from acting due to lack of Legal Aid.

It was clear from the evidence that Mrs Pullar, whose date of birth was 20 July 1941, died in Ward One of Monklands District General Hospital, Airdrie at 0015 hours on 17 January 2004.

The cause of death was established by Dr Tobias Hatter, a lecturer in Forensic Pathology at the University of Glasgow. He found that Mrs Pullar died as a result of (1)(a) Bronchial pneumonia due to (b) hypoxic and hypoglycaemic brain damage due to (c) cardiac respiratory arrest due to (d) a presumed insulin excess. He found that a potentially contributing cause was (2) diabetes mellitus and diabetic nephropathy.

Dr Hatter explained to me that the phrase "presumed insulin excess" arose from the fact that he had been advised that it was accepted that Mrs Pullar had in error received ten times the intended dose of insulin. However by the time he undertook the post mortem there would be no trace of insulin in the system and therefore he could not personally speak to its existence. He was however clear that if it was established (as the later evidence clearly did) that Mrs Pullar had been given ten times the intended dose, that this would lead to a cardio respiratory arrest and that hypoxic and hypoglycaemic brain damage would follow.

The purpose of the Inquiry was to ascertain, if possible, the circumstances under which this accidental overdose was given, whether there were any failures in the system of working which caused this and what, if any, reasonable precautions might have resulted in Mrs Pullar's death being avoided. It also allowed any other fact relevant to the circumstances of the death to be explored.

Mrs Pullar stayed originally at 19 Abbotsford Court, Cumbernauld but following what was believed to be a stroke, she was moved to Carrickstone House Care Home, 1 Ratho Drive, Carrickstone, Cumbernauld. She was diabetic and dependent on injections of insulin but because she was also suffering from end stage renal failure as a result of which she had to undergo haemodialysis three times each week, it was necessary to ensure that the insulin dosage was kept at a low level.

It is recognised that what may well be a normal dose of insulin for an otherwise healthy person will have fatal consequences if given to somebody with major renal problems and, in particular, somebody whose condition requires haemodialysis.

At the home her condition deteriorated during the first week of January 2004 and, as a result, Dr Tricia Moylan, a Consultant in Geriatric medicine, made a domiciliary visit to Carrickstone on the evening of 08 January and decided to admit Mrs Pullar to Monklands District General Hospital.

In her letter to the receiving doctor, Dr Moylan recorded that "there has been a marked deterioration in her condition in the past week with fluctuating conscious level. She has had two episodes of hypoglycaemia but fluctuation in conscious level has occurred without a drop in the blood glucose."

The letter records that Mrs Pullar had a complex previous medical history including end stage renal failure, (for which she was due to receive her next stint of haemodialysis on 09 January) diabetic nephropathy, diabetic retinopathy, hypertension and recurrent falls.

Dr Moylan concluded that it appeared likely that Mrs Pullar would require long-term hospital care and felt that there was a need for a CT scan to check for a subdural haemorrhage in view of the history of falls and fluctuating conscious level. The consultant concluded with enclosing the drug cardex for Mrs Pullar and indicating that if a bed could be found for Mrs Pullar in Wards 20, 21 or 22, she personally would continue her care.

Of particular note in the drug cardex to which consultant drew attention was the fact that she had reduced the insulin for Mrs Pullar from twelve units per day to eight units (given in morning and evening doses of four units each).

I am entirely satisfied as the results of the evidence, which I heard from various doctors and, in particular, from Dr Myles Fisher, a Consultant in Diabetes from Glasgow Royal Infirmary, that this dosage was appropriate and that had it continued to be used, this tragedy would not have occurred.

On her arrival at hospital Mrs Pullar was seen by Dr Rebecca Muirhead, a Senior House Officer, and thereafter by Dr Sarah Drury, who was at that time a Junior House Officer in the Emergency Receiving Unit.

Dr Muirhead arranged for various investigations to be carried out and in particular for a blood sample to be taken for analysis. The result was received after Dr Muirhead went off duty and showed a blood glucose level of 3.1, which indicated that Mrs Pullar was hypoglycaemic.

Dr Drury completed the drug cardex for the hospital and, in particular, continued the insulin prescription which Dr Moylan had authorised earlier. Accordingly, it was intended that Mrs Pullar would receive four units twice a day.

Because dosages of insulin require to be regularly monitored and, if necessary, altered depending on the patient's condition and, in particular, blood glucose level, it is accepted practice as established by the evidence to create a separate diabetic chart. This provides a record of the type of insulin used, the dosage and time given and results of all blood glucose tests. It enables any adjustments in dosages (which can be required when the patient has an erratic blood glucose level) to be noted.

In Mrs Pullar's case this document is page 437 of Volume 2 of the Hospital Medical Records (production 1). In addition there is a principal drug cardex which records that insulin is one of the drugs prescribed for Mrs Pullar. This document is page 86 of the same volume.

The purpose of the drug cardex is to provide written authorisation for the prescribing and administration of drugs and it should be supported by the signature of a doctor. Dr Drury did sign the prescription for the insulin for Mrs Pullar on page 86 and under the heading "dose" she wrote "4u."

At some point between her writing this on the evening of Thursday 08 January 2004 and the morning of Monday 12 January 2004 that entry was altered from "4u" to "4a". It is impossible to establish by whom or why this alteration was made. It is, however, for the reasons to which I will allude later, of no relevance to the circumstances of Mrs Pullar's death.

In writing "4u" Dr Drury was indicating that she wished each dose to be four units. The drug cardex, (at page 86) does not have any means of specifying the unit of measurement used for whatever is being prescribed. This is understandable as drugs are measured in different units including milligrams, millilitres etc.

The same situation does not apply to the diabetic chart where the only item which is being recorded, is insulin for which there is standard unit of measurement.

On the diabetic chart as it existed in January 2004 there is a column headed "units" in which for each entry a figure can be entered showing the number of units administered.

Since this tragedy the form has been redesigned so that the word "units" is preprinted opposite each entry so that it is not necessary to write the word or any abbreviation of it.

When Dr Drury wrote the cardex (page 86) she also wrote up the first entry in the diabetic chart (page 437) and again used the abbreviation (4u). That entry is totally clear and, in particular, the letter "u" is totally clear. Under no circumstances could it be mistaken for the figure "o."

Mrs Pullar was also seen by Dr Nick Kennedy, the receiving consultant and was admitted to ward 14 at Monklands District General Hospital where she came under the nursing care of the staff there.

The diabetic chart (page 437) and the drug cardex (page 86) were thereafter available for the staff in ward 14.

During the night a number of blood glucose tests were carried out and Mrs Pullar's blood glucose level increased. This may well have been due to the infusion of dextrose, which the doctors had prescribed. By the time a reading was taken before breakfast on 09 January it had reached 4.3 which is within an acceptable range.

Thereafter blood glucose readings were meant to be taken at least four times per day, ie., before each meal and in the evening although it appears that in Mrs Pullar's case additional readings were taken during the night if she required milk or any sustenance. It is normal practice when caring for a patient such as Mrs Pullar to undertake a check of the blood/glucose level before any food or drink is given. It is thereby possible to see what would be appropriate and is required to maintain the blood glucose balance at an acceptable level.

Mrs Pullar's family visited her on 09 January and found her to be happy and alert. The nursing records support this assessment. It was not possible to arrange for Mrs Pullar to have a CT scan on the Friday and the unit does not operate at the

weekend. As the post mortem showed that there was no evidence of a subdural haemorrhage or any problem which would have been revealed by a CT scan, this factor has no relevance to the circumstances of Mrs Pullar's death.

In accordance with Dr Drury's instruction, as contained on the diabetic chart, arrangements were made to give Mrs Pullar a dose of insulin on the morning of 09 January prior to breakfast. This and the next three doses on the evening of 09 January and morning and evening of 10 January were given by Nurse Fiona Thomson, who in each case recorded that this had been done on the diabetic chart.

I am satisfied that on each occasion she gave Mrs Pullar four units. I have reached this conclusion based on the evidence of Dr Fisher that had Mrs Pullar received ten times that dose on either the Friday or the Saturday there would at that time have been clear evidence in her condition. She would have become hypoglycaemic, have lapsed into a coma and have died if this situation had not been reversed. There is no evidence that Mrs Pullar had any major hypoglycaemic incident on Friday or Saturday and in the circumstances it is clear that she was given the correct dose on all four occasions on Friday and Saturday.

The practice in Ward 14 (and it is one which I was informed is in accordance with proper and appropriate nursing practice) is for two nurses to check the drug and the entry on the authorising sheet, (be it the drug cardex or the diabetic chart) and having checked that the drug is in order and the correct dose has been drawn to allow one of the nurses to administer it. Nurse Thomson was clear that on the four occasions in which she had done this she had had another nurse with her and, in particular, she believed that on the evening of Saturday 10 January that other nurse had been Staff Nurse Catherine Walker. Catherine Walker had no recollection of this.

Nurse Thomson did not use the drug cardex (page 86) as her authority for finding the appropriate dose, instead she used the insulin chart (page 437) on which Dr Drury had clearly written "4u."

Nurse Thomson using the same method of recording the figure purported to write "4u." Examination of page 437 reveals that of the four entries only that for the Saturday evening could under any circumstance be described as clearly "4u." Even then the "u" displays a distinct curve in respect of the two arms pointing inwards. The other three entries can best be described as leaving a minimal and barely visible gap between the loops at the top of the two arms so that it could easily be read as "o" thereby making a subsequent person believe that the dosage given had been "40" and not "4u."

Nurse Thomson was not on duty on Sunday 11 January and accordingly was not involved in the administration of Mrs Pullar's insulin on that morning. There were twenty-four patients in Ward 14 that morning and the nursing staff consisted of three staff nurses, Kathleen Walker, Lindsay Walker and Staff Nurse Banks. All were of equal grade but Staff Nurse Lindsay Walker had only recently reached that level and Kathleen Walker was the most experienced of the three and assumed responsibility for the ward. This is in accordance with normal practice when there is more than one nurse of equal grade on duty.

There were also two auxiliary nurses starting duty and both were present when the night duty staff handed over at around 7.00 am. By that time Mrs Pullar's pre-breakfast blood sugar reading had been taken by the night staff but neither she nor any other patient had had breakfast. The reading was 4.3 which was within the acceptable range.

Nurse Kathleen Walker advised the other members of staff that a new system of work allocation was being operated in the ward. This had been in operation during the week preceding Sunday 11 January but Nurse Lindsay Walker had not been on duty when it had been operated and at least one member of the auxiliary nursing staff was unfamiliar with it.

The practice, until that week, had been for all the nurses to accept responsibility for all the patients and for one auxiliary to undertake the blood sugar readings for the whole ward. The new trial system, which had been instigated by the ward sister, Karen Ewart, involved dividing the nurses into teams, each team being responsible for certain patients.

Sister Ewart was on duty on 10 January until 3.15 pm and there is an entry in the nursing records (page 72) confirming that insulin had been given to Mrs Pullar.

When she gave evidence Sister Ewart indicated that she expected the auxiliary member of her team to be responsible for the taking of the blood sugars for the patients involved with that team and not for all the patients in the ward. This contradicts the understanding of Nurse Kathleen Walker who believed that one of the auxiliaries would undertake the blood sugar test for the whole ward notwithstanding the new team arrangement. Kathleen Walker believed that the auxiliaries would undertake this task and that where there was more than one auxiliary on duty (as was the usual position) the auxiliaries would decide between themselves who would undertake all the tests at a particular time.

The two auxiliaries on duty that morning were Nancy Cassidy and Walter Bow. Nancy Cassidy could not recollect whether prior to 11 January it had been the policy for one auxiliary to do all the blood glucose readings for the ward under the trial system. She was however clear that now there is a policy whereby all blood glucose readings are done by one member of the auxiliary staff.

On 11 January Nurse Kathleen Walker stated that the work of the ward should be undertaken by three teams. Nurse Lindsay Walker would work with Nancy Cassidy and Nurse Banks would work with auxiliary nurse Bow and she would work on her own. Each team would have eight patients and amongst the patients for whom Nurse Kathleen Walker was to be responsible was Mrs Pullar.

Nurse Lindsay Walker protested at this proposal. She pointed out that as there were five nursing members of staff this figure could not be divided into three teams. She was unfamiliar with the new system having never been involved in it earlier and she considered that the previous system whereby all five would be responsible for the twenty-four patients should apply.

Nurse Kathleen Walker indicated that the new trial system had been introduced and would apply that day and that she would work without an auxiliary, each other team having a staff nurse and an auxiliary responsible for eight patients.

According to Nancy Cassidy (and Nurse Kathleen Walker was not in a position to contradict this) Miss Cassidy offered to carry out the blood sugar readings for Kathleen Walker's patients but Kathleen Walker indicated to her that she should keep to her own teamwork. Kathleen Walker has no recollection of this conversation but accepts that it could have happened. I believe that it did occur and that as a result auxiliary nurse Cassidy did not carry out the blood glucose reading on Mrs Pullar before lunch and in fact no such reading was undertaken.

This was a fundamental and vital failure. Had it been done, as was required, then I am satisfied from the evidence which I heard and, in particular, from the evidence from Dr Fisher, that the deterioration in Mrs Pullar's condition would have been apparent and remedial steps could have been taken which might have saved her life.

Staff Nurse Cassidy indicated that she recollected that Mrs Pullar had not had her breakfast and she had to give it to her. Because of her medical condition Mrs Pullar did require to be assisted in relation to feeding and this is a task which would have been undertaken either by the nursing staff responsible for Mrs Pullar or by any other member of staff who was available.

It is unclear why Nurse Kathleen Walker was unaware that one of her patients, Mrs Pullar, had not taken her breakfast and it is unclear whether she asked Nurse Cassidy to do this or whether Nurse Cassidy noticed that the patient had not had her food and spontaneously undertook the task of feeding her.

The circumstances of Mrs Pullar's breakfast are not directly relevant to her death but may possibly indicate that things were not as well organised within the ward as they should have been.

Kathleen Walker, as the nurse responsible for Mrs Pullar, knew that she required an insulin injection before she ate at breakfast time and she therefore referred to the diabetic chart.

She would have observed that no attempt had been made to obtain medical authorisation for the doses given on Saturday or Friday by Nurse Thomson. She advised me that she did not look to the original entry by Dr Drury at the top of the page nor did she have regard to the drug cardex in proceeding with the insulin injection.

Tragically, she misread the entry for Saturday morning (which is immediately above that which she was about to enter for Sunday morning) and instead of giving 4 units she gave 40 units.

She did not have this dosage checked by another nurse as would have been proper and appropriate practice as spoken to by Sister Ewart and by the nursing expert, Mrs Gayle Richard, who gave impressive independent evidence at the end of the Inquiry.

Nurse Kathleen Walker did not have the drug prescribed by a doctor nor did she at any point have a doctor check the dosage which she had given.

There can be little doubt that had she asked a doctor to either authorise the insulin dosage which she was giving or alternatively had asked the doctor to authorise in retrospect the prescription then Mrs Pullar's life would probably have been saved.

Any doctor, knowing Mrs Pullar's condition, would have realised that while forty units can be an acceptable dosage for certain diabetic patients, it was potentially fatal for a patient with the renal problems which Mrs Pullar had. No doctor had one been asked to authorise the insulin dosage would have authorised forty units.

Even if Staff Nurse Kathleen Walker had given the incorrect dosage a doctor could have endeavoured to reverse the effects if made aware of the error.

Tragically, no doctor ever saw what Kathleen Walker had written until Mrs Pullar's condition was such that it was impossible to save her life, and as no other nurse saw the entry which Kathleen Walker made until it was too late and she did not check the dosage with any other nurse at the time Mrs Pullar received ten times the appropriate dose of insulin before breakfast.

Nurse Kathleen Walker remained the senior nurse in the ward for the remainder of the day but Staff Nurse Banks finished her duty at the end of her shift in the early afternoon. This meant that the ward now had two nurses, Nurse Kathleen Walker and Nurse Lindsay Walker on duty.

Nurse Kathleen Walker therefore decided that the nursing care should be undertaken by two teams each to be responsible for twelve patients. She advised nurse Lindsay Walker that she (Kathleen Walker) would take over the care of all of nurse Banks' patients and retain four of the patients she had had care of in the morning and the remaining patients (which included Mrs Pullar) would pass into the care of nurse Lindsay Walker. Accordingly, from the time that the nurses returned from their own lunch (around 1.00 pm) nurse Lindsay Walker had taken over primary responsibility for the nursing care of Mrs Pullar although Kathleen Walker remained in charge of the ward.

There was a dispute in the evidence between whether Mrs Pullar had had her lunch or not. Kathleen Walker gave evidence that she had given Mrs Pullar her soup and sweet but that she had not had her main course.

Mrs Pullar's daughter, in her evidence, stated that she had been told by one of the other patients when she had arrived at visiting time that her mother was "stubborn" because she would not eat her lunch. Nurse Lindsay Walker also stated that she had been told by a patient that Mrs Pullar had not had any lunch.

There was no direct evidence that Mrs Pullar did not have some lunch. The recollection of Mrs Natalie Martin (Mrs Pullar's daughter) that a comment had been made about her mother's lunch could be consistent with nurse Kathleen Walker's evidence that Mrs Pullar did not have her main course. I am not prepared to make a finding that nurse Kathleen Walker did not give Mrs Pullar lunch.

For any diabetic patient it is essential to know what they have eaten and when so that their blood glucose level can remain balanced. It is therefore inconceivable that an attempt was not made to feed Mrs Pullar and I have therefore concluded that she did have soup and sweet at lunchtime.

From nurse Kathleen Walker's evidence it is apparent that she saw no sign of any particular problem with Mrs Pullar at this time although there had been evidence (which I shall refer later) that Mrs Pullar had been clammy in the course of the morning.

The significance of my acceptance that Nurse Kathleen Walker did provide lunch for Mrs Pullar exposes a further flaw in the nursing procedure which existed. Had Kathleen Walker checked the diabetic chart she would have found that no blood glucose reading had been taken pre-lunch. As I have indicated, had this been done, it would undoubtedly have shown that Mrs Pullar's level had been affected by the wrong dosage given to her earlier by Kathleen Walker. Any nurse before feeding an insulin dependent patient should have checked the blood sugar reading before commencing feeding the patient. One of the main reasons why these readings were ordered pre- each meal was to enable any adjustment in the feeding or alternatively in the insulin dosage to be made as soon as possible.

Instead, it appears from her evidence, that nurse Kathleen Walker proceeded to give Mrs Pullar soup and sweet for lunch without checking the chart to see her blood glucose reading.

Earlier in the morning, around 11.00 am, Mrs Pullar had been bathed by Kathleen Walker and auxiliary nurse Cassidy. Nurse Cassidy noted that Mrs Pullar felt "clammy" but Kathleen Walker indicated that was her normal state and she had been like that overnight. There is nothing in the records nor did anybody speak to Mrs Pullar's condition being "clammy" or "sweaty" earlier.

It was suggested that this might have been the initial signs of Mrs Pullar's condition changing because of the overdose and clearly if this was so then this initial sign had not been followed up. If indeed Mrs Pullar's condition had changed that morning by the time she was being bathed then a nurse of Kathleen Walker's experience should have reacted and investigated the matter further.

I am however not prepared to find that Mrs Pullar's condition at around 11.00 am gave the necessary indication that further investigation was required. While I believe that Nurse Cassidy was doing her best to indicate the position as she found it she had not been involved in the day to day care of Mrs Pullar and while she may have felt that she was clammy her assessment may have merely reflected how Mrs Pullar was anyway particularly when she was being bathed. I therefore do not accept that at 11.00 am there was an indication in Mrs Pullar's condition which should have caused further investigations to be carried out at that time.

There was no evidence that Mrs Pullar was sweating at the time that Kathleen Walker saw her to give her lunch around 12 noon. Kathleen Walker did not appear to notice any particular cause for concern at that time and after the nurses had returned from lunch care of Mrs Pullar passed to Nurse Lindsay Walker.

Nurse Lindsay Walker, who had had no contact with Mrs Pullar during the morning but had been present at the initial handover from the nightstaff and therefore knew that her patient was diabetic and suffering from renal failure, did a general walk round of her patients. This was around 2.00 pm.

She noted that the patient was lying in bed moaning. She did not touch her, test her or take her temperature etc. but she did believe that she was not sweaty.

Because of Mrs Pullar's condition she asked Nurse Kathleen Walker to look at the patient but Kathleen Walker indicated that, in her opinion, there was not cause for concern.

Lindsay Walker disagreed and decided to contact the Junior House Officer. She however did not return to the patient nor make any checks as to her condition thereafter. While she believed that she was quite drowsy and her condition was such that she felt a doctor should be informed she did not check the records (whereby she would have found that the blood glucose reading pre-lunch had not taken place) nor did she carry out any physical examination of Mrs Pullar or make any assessment other than a visual one.

Lindsay Walker in her evidence indicated that it had failed to "click" with her that Mrs Pullar was a diabetic. Even if she had forgotten that this patient was a diabetic (the fact she knew from the handover in the morning) it is difficult to understand why she failed to provide any nursing care for Mrs Pullar prior to the arrival of the doctor.

Lindsay Walker indicated that she had telephoned for a junior house doctor between 2.00 and 2.30 pm. As I understood the practice which existed at that time, this would have involved her contacting a central switchboard who would then put out a call for the junior house doctor.

Dr Andrew Fyfe, who was a junior house doctor at the time, gave evidence that he had responded to the call within five minutes. It is clear from all the evidence however that he did not arrive at the ward until at least 3.20 pm by which time it was appreciated a crisis had arisen. Whether Dr Fyfe is mistaken in his recollection that he responded to the call within five minutes or whether the system for passing the call to the junior house doctor is such that he did not receive the message until well after 3.0'clock, I cannot tell. It is however clear that there was, according to Nurse Lindsay Walker, a considerable time gap between her being concerned about the patient and seeking to contact the junior house doctor and Dr Fyfe's arrival in the ward.

It is regrettable that during that time gap Nurse Lindsay Walker did not return to Mrs Pullar and monitor her condition and perhaps carry out further assessments. Had she been aware that Mrs Pullar's condition was deteriorating she could have made an emergency call for a doctor and remedial steps could have been instituted earlier.

It is impossible to say at what point Mrs Pullar's condition deteriorated to the extent that nothing further could have been done but it was clear from Dr Fisher's evidence and from that of the other medical witnesses that an insulin overdose can be

reversed and the affects compensated for provided the situation is found early enough.

Around 3.00 pm visiting started in the ward and two of Mrs Pullar's daughters arrived. When they arrived at their mother's bed she did not appear to be orientated and was pale, cold and unresponsive. They were told by other patients that their mother had been sweating and grinding her teeth but there was no nursing evidence that this had taken place.

Mrs Martin went out to speak to the nurses indicating that they were worried but she was informed that Mrs Pullar had been checked around 1.30 pm. Mrs Martin therefore returned to join her sister, Miss Moira Pullar, who considered that her mother looked ghastly and was unresponsive. While Mrs Natalie Martin had been out seeing the nurses she (Miss Moira Pullar) had endeavoured to take her mother's pulse and was unable to find one. She had therefore gone out and told this to the nurses who had reacted immediately going to Mrs Pullar's bedside, pulling the curtains around and sending for emergency help.

There was a dispute between the nurses and Mrs Pullar's daughters as to exactly what had happened and what the nursing response was. Both daughters were clear that Mrs Martin had gone out, had spent some time apparently at the nursing station and had returned with the information that Mrs Pullar had been poor all day and that it was only thereafter when Miss Moira Pullar had gone out and told the nurses that there was no pulse that there had been any reaction.

Both Nurse Walkers were clear that Mrs Martin was in the process of describing her concerns about her mother when her sister had emerged from the ward indicating that there was no pulse and that they had reacted thereafter.

In the confusion of a crisis it is always possible for recollections to become confused. Clearly Mrs Pullar's daughters were very upset and that upset grew greater when they realised that their mother's condition was such that it could not be reversed. It may be that Mrs Martin did not indicate to the nurses as forcibly as she did in her evidence how great her concern was at her mother's condition but I am satisfied from what she told me and from the evidence I heard from Miss Pullar that they were both sufficiently concerned by the time that Mrs Martin left to speak to the nurses that the nurses should have reacted and gone to see Mrs Pullar then rather than await until Miss Pullar emerged from the ward indicating that she could find no pulse. I preferred the evidence of Mrs Martin and Miss Pullar that Mrs Martin returned to the ward before Miss Pullar went out and indicated there was no pulse as opposed to the evidence of the nurses that Mrs Martin had not moved from the nursing station before her sister stated that there was no pulse and the nurses reacted.

It is impossible to tell from the evidence which was led before me whether that couple of minutes (the sisters estimated it at two or three) would have made any difference. I was not given any evidence as to how long the supply of oxygen to Mrs Pullar's brain had been compromised and at what point it might have been possible to resuscitate her. It is accordingly speculation as to whether the failure of the nurses to respond to Mrs Martin is a relevant factor.

Once the emergency services had been sent for (Dr Fyfe coincidentally arrived on the ward) everything possible was done for Mrs Pullar. She was ultimately moved to ward one where she was nursed with care and where she received every possible medical assistance available. Unfortunately her condition was such that it was impossible to reverse the coma into which she had slipped and at 12.15 am on 17 January she died.

Miss Laura Pullar, in her final address to me, asked me to record that Mrs Pullar's family were grateful for the care and support which their mother received in ward one and that they accepted that no blame or criticism could or should be made in relation to their mother's treatment there nor for the efforts made by the nurses and doctors within ward fourteen once the crash team had been sent for and the emergency procedure put into effect.

In her final speech Miss Green invited me to make a determination that Mrs Pullar had died on 17 January 2004 within ward one of Monklands District General Hospital at 0015 hours and that the cause of death was as indicated by Dr Hatter.

Miss Laura Pullar and Mr Crerar, on behalf of the Hospital, indicated that they were in agreement.

Miss Green invited me to consider and rule on certain matters and to include particular points in my determination.

She pointed out that it was clear from the notes that Kathleen Walker had been involved in the drawing up of 4 units of insulin for Mrs Pullar on the Saturday night and she suggested that it was therefore odd that she should have chosen to give 40 units on the Sunday morning. Kathleen Walker had no recollection of being involved in the insulin dose check on the Saturday night and given that she was on the Sunday morning involved in running a busy ward I do not consider that it would be fair to criticise her for her failure to recollect a particular dosage which she had checked (but not given as this was done by Nurse Thomson) on the previous evening.

Where I consider that Miss Green is correct in her criticism of Kathleen Walker (and Miss Laura Pullar supported this) is in her failure to have the dose of insulin which she was giving to Mrs Pullar on the Sunday morning checked by another nurse. It was accepted and normal practice for two nurses to check the dose and Kathleen Walker failed to do this. She also failed to have the prescription for the insulin signed by a doctor. I was informed that because of the need to give insulin at a particular time (ie before a meal) it is sometimes not possible to have a doctor present in time but it was accepted that proper normal procedure would involve the nurse at the earliest possible opportunity thereafter having the entry checked and countersigned by a doctor and this, Kathleen Walker did not do. Sister Ewart was clear that the correct and authorised practice had not been followed.

It is apparent from the records that this had not been done on any occasion in the ward in relation to Mrs Pullar. Neither on the Friday nor on the Saturday had any attempt been made to show the record to a doctor or to have a medical countersignature. Mr Crerar argued that this did not necessarily indicate a failure in

the system applying in the ward but I do not agree. I consider that Miss Laura Pullar and Miss Green are justified in inviting me to note this as a failure in the system operating within ward fourteen at that time.

I believe that it can fairly be stated that had the system been properly operated, that the nature of Nurse Thomson's handwriting would have been clarified by the doctor countersigning and that, had a doctor prescribed the insulin on the Sunday morning, he or she would clearly have indicated 4 units thereby avoiding the mistake. Furthermore, had the 40 units been given in error the doctor would have realised this and instituted remedial measures forthwith.

I have therefore concluded that there was a failure in the system for recording and prescribing insulin within ward fourteen and that this must be recorded as a defect in a system of working which contributed to Mrs Pullar's death.

The cause of Kathleen Walker's mistake was the handwriting of Nurse Thomson. It is fundamental that figures in relation to drugs are written clearly and cannot be readily misinterpreted. It is exceptionally easy to understand how Kathleen Walker made the error which she did. The vast majority of people seeing the entry to which she referred immediately above the one which she was about to enter would have read that as 40 and not 4u. It is therefore appropriate that Nurse Thomson's involvement is recorded as a factor in Mrs Pullar's death. Had she written the figures clearly for Saturday morning (and her entries for other times are little better) then this tragedy would not have happened.

Kathleen Walker however cannot escape total responsibility in this connection. If she had looked to the top of the page where Dr Drury's entry was she would have seen 4u written clearly. Had she chosen to refer to the prescription chart she would also have seen the entry clearly as 4u. She did neither and thereby lost an opportunity to give the correct dose to Mrs Pullar.

As I have indicated, for some reason and by somebody whose identity was not revealed, the entry on the prescription chart was subsequently altered. As Kathleen Walker was clear that she had not referred to the prescription chart in making her decision it is not relevant to Mrs Pullar's death and it must therefore remain as another mystery.

It cannot however be emphasised sufficiently that for any person to deliberately tamper with medical or nursing records is exceptionally grave. While in this case it was not relevant were such a practice ever to occur again it could result in the perversion of justice. I would hope that the Hospital Authorities will make it crystal clear to all their staff the consequences of tampering with records and will endeavour to ensure that this never occurs again.

Miss Green suggested that the use of the letter "u" to denote units had perhaps caused confusion. The diabetic chart used in the hospital has subsequently been altered so that the word "units" is already preprinted before each entry, accordingly, there would be no need in the future to write the letter "u". She suggested that in fact there had been no need to write the letter at all by either Dr Drury or by any of the nurses as the column was headed with the word "units."

I am not prepared to make any criticism of Dr Drury or of the nurses for using the letter "u." I consider that the new design is an improvement because the word "units" is specifically preprinted for each entry and that this will, hopefully, avoid the necessity of anybody writing the word or shortanding it to "u." In January 2004 it is perfectly understandable for a doctor or a nurse to use the letter "u" to indicate units and I do not feel that Dr Drury can be faulted for doing this even if the column had a heading on it. In any event for the reasons which I have given the entry on the prescription chart (Page 86) would still require to have "u" or "units" written.

While I accept that the new form is an improvement I am not prepared to say that the form which existed in January 2004 was defective or inadequate. The basic mistake, which led to this tragedy, was the poor handwriting of Nurse Thomson and the failure of Kathleen Walker to have the dosage checked by another nurse and countersigned by a doctor.

No handwriting would change no matter which form was being used and the error by Kathleen Walker in failing to have her dosage checked and countersigned would have arisen whichever form was in place.

Miss Green continued with her submissions by suggesting that I made a finding under subsection (d) that there had been no adequate working routine in place on ward fourteen on 11 January 2004. She indicated that there appeared to be a lack of clarity as to which nurse was to accept responsibility for the ward as they were of equal grade and that once Nurse Kathleen Walker had assumed charge there had been a failure to designate tasks so that Mrs Pullar had not received her breakfast on time and nobody had taken her blood glucose reading pre-lunch. There also appeared to have been, Miss Green contended, confusion about the handover between the two Nurse Walkers and a general lack of organisation within the ward which had resulted in inadequate nursing care.

Miss Laura Pullar supported this contention supplementing it by suggesting that there was poor communication between the nurses and the doctors which had resulted in no check being made of the diabetic chart by a doctor after Dr Drury's initial entry.

She also pointed out that there did not appear to be an efficient system whereby the junior house doctor could be sent for. Lindsay Walker contended that she had sent for the junior house doctor to check Mrs Pullar between 2.00 and 2.30 pm and it was accepted that Dr Fyfe had not arrived till at least 3.20 pm but indicated that he had only received the message five minutes before.

Dealing with the latter point first I was unclear from the evidence which I heard how urgent Lindsay Walker had regarded the call for the junior house officer when she made it. If it was indeed urgent it is difficult to understand why Dr Fyfe was not summoned speedily but it is equally difficult to understand why Lindsay Walker did not go back to the patient to check her condition and to monitor it. If the call was not to be an urgent one it is perhaps understandable why Dr Fyfe did not receive the message as quickly as he could have. Without evidence as to how the call system operated in Monklands, I cannot include any finding in this connection in my determination.

I do however consider that there is substance in the point made by Miss Green and by Miss Pullar that there does appear to have been some confusion within the ward as to who was to be in charge and how duties were to be delegated.

It is apparent from the evidence given by Sister Ewart that the person who should have been in charge was Kathleen Walker. She was the most experienced nurse on duty and it was correct that she should accept responsibility for the ward. Where however criticism may be made is that she was endeavouring to impose the system which had been initiated earlier in the week on members of staff to whom no explanation had been given and who were unaware of the change. It is apparent that neither Nurse Lindsay Walker or Nurse Cassidy were aware of the affects of the new regime whereby patients were nursed by teams as opposed to any nurse available. While Nurse Cassidy had been part of one of two teams on the 10th Nurse Lindsay Walker had no experience of this new system and neither had any experience using three teams particularly when one of the teams was lacking an auxiliary nurse.

I believe that criticism can and should be made of a system which is introduced without all the members of staff fully understanding it and where it is possible for there to be a misconception as to who is to undertake particular tasks.

It was clear from the evidence that there was a basic misunderstanding as to who should undertake the blood sugar readings for the ward. Kathleen Walker appeared to consider that this was being dealt with by the auxiliary whereas Nurse Cassidy indicated that she had specifically asked and had been told that each team would do its own.

Something as fundamental as the taking of an essential reading for which nutrition and insulin levels would depend should not have been left as a source of confusion.

Sister Ewart, in her evidence, indicated that the system which she had intended should exist would involve each team's auxiliary being responsible for the blood sugars of that team's patients alone. Kathleen Walker appeared to consider that the former system whereby one auxiliary undertook this task for the ward still prevailed.

Miss Green suggested that there should in fact be formal meetings and discussions with the staff before any changes implemented but I agree with Mr Crerar's view that this would be impracticable. I do however consider that it is important where fundamental changes in practice are being tried by senior management that all those involved are aware of exactly what the new system is and what changes it involves in their work pattern.

Mr Crerar, on behalf of the Hospital and the staff, accepted that some responsibility for Mrs Pullar's death had to remain with Kathleen Walker. She had failed to follow the accepted practice and protocol of having insulin checked and she had failed (as had Nurse Thomson) to follow the practice which Sister Ewart indicated should have been in effect whereby insulin was prescribed by a doctor and a doctor's signature was necessary.

Mr Crerar however argued that I should not make a finding in relation to Nurse Thomson's handwriting. He argued that it was not sufficiently relevant in that had

Nurse Kathleen Walker carried out the appropriate checks and in particular if she had looked back to the entry by Dr Drury or had looked at the prescription chart (page 86) she would have seen the correct dosage. I do not accept this. There is a responsibility on all those involved in writing up medication and test findings to ensure that their figures are sufficiently clear that they are not capable of misinterpretation. It is a fundamental element of medical and nursing care that records are kept so that others can refer to them and obtain correct information thereby. Nurse Thomson's figures were so poorly written that most people would have misinterpreted them and Kathleen Walker did.

Mr Crerar also argued that I should not criticise Nurse Lindsay Walker. He correctly pointed out that she had taken the trouble to visit Mrs Pullar when she had taken over her care and that she had been sufficiently concerned that she had spoken to Kathleen Walker who had firstly overall responsibility for the ward and had also been nursing Mrs Pullar during the morning.

Lindsay Walker had furthermore sent for a doctor despite the view of Kathleen Walker that this was not necessary. Mr Crerar therefore argued that it would be unreasonable to criticise Lindsay Walker's actions.

I accept that Lindsay Walker did take the trouble to see Mrs Pullar and was sufficiently concerned to raise the matter with Kathleen Walker and also to send for the doctor. What however I cannot find an adequate explanation for is her failure to return to Mrs Pullar and examine her thoroughly. The nursing expert, Mrs Gayle Richards, criticised her for failing to take steps to assess the patient. She did not return to see if Mrs Pullar's condition had altered, she did not touch her to see if there were signs of clamminess and she did not carry out any check to see if her level of consciousness had altered. I believe that the evidence established that Nurse Lindsay Walker should have, if she was so concerned, returned to see the patient and maintained observations on her. She failed in this although she appreciated that the doctor had not responded to her call and by that failure she allowed time which might have proved valuable to lapse.

It is impossible to tell at what point Mrs Pullar's condition deteriorated to the extent that the hospital staff were unable to reverse her decline. Clearly this was the position by the time the crash team arrived in the ward but both Dr Fisher and Dr Nick Kennedy, the consultant involved in the emergency receiving unit, were clear in their evidence that it is possible to reverse an overdose of insulin if the matter is dealt with timeously.

I have reached the conclusion that Nurse Lindsay Walker's failure to properly assess Mrs Pullar after she became concerned about her may have delayed time when emergency medical steps could have been taken. It is however impossible to state that Mrs Pullar's death would have been avoided had Lindsay Walker returned to the ward during the gap before visiting hour when she was awaiting the junior house officer. It is therefore appropriate to include this finding under subsection (e) - any other facts relevant to the circumstances of the death as opposed to subsection (c) which requires me to make a finding that a reasonable precaution was not followed whereby the death "might have been avoided."

I accordingly find and determine that Mrs Moira Pullar (date of birth 20.07.41) who had been a patient in Carrickstone House Care Home, Cumbernauld and whose home address was 19 Abbotsford Court, Cumbernauld died in ward One of Monklands District General Hospital, Airdrie, at 0015 hours on 17 January 2004 and that the cause of death was bronchial pneumonia due to hypoxic and hypoglycaemic brain damage due to cardiac respiratory arrest due to an insulin excess. A contributory factor was Mrs Pullar's diabetes mellitus and diabetic nephropathy.

In terms of Section 6(1)(c) a reasonable precaution whereby the death might have been avoided would have been if Nurse Kathleen Walker had checked the dosage of insulin which she gave Mrs Pullar on the morning of Sunday 11 January with another nurse in accordance with normal protocol and if the prescription had been authorised or checked by a doctor.

In terms of Section 6(1)(d) there was a defect in the system of nursing whereby insulin doses were given without a doctor's prescription or supervision. There was also a defect in the system of nursing on 11 January whereby there was a lack of clarity as to who was to be responsible for the taking of blood sugar levels for patients requiring these readings whereby no reading was taken for Mrs Pullar pre-lunch. These two defects in the system of working contributed to the factors which led to her death.

In terms of Section 6(1)(e) the facts which are relevant to the circumstances of Mrs Pullar's death include the confusion within the nursing staff of Ward 14 on 11 January 2004 as to a new trial system of working. A second fact was the unclear figures written by Nurse Fiona Thomson relating to the dosages of insulin given to Mrs Pullar on the Friday and Saturday. This led directly to Staff Nurse Kathleen Walker misreading the figure and thereby giving Mrs Pullar ten times the intended dose. A further fact which is relevant to the circumstances of Mrs Pullar's death was the failure by Nurse Lindsay Walker once she became concerned about Mrs Pullar's condition to assess the patient and, in particular, to return to check her after she had sent for a doctor because of her concern between 2 and 2.30 pm.