

SHERIFFDOM OF LoTHIAN AND BORDERS AT EDINBURGH

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

DETERMINATION

BY

SHERIFF I G McCOLL

in respect of

the INQUIRY

into the death of

MARLENE PATRICIA WIGHTMAN

Edinburgh November 2009

The Sheriff, having resumed consideration of all the evidence adduced, **FINDS and DETERMINES** in terms of section 6(1) of the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976 that:

(a) Marlene Patricia Wightman, formerly of 20 Woodburn Grove, Dalkeith, born on 16th August 1956 died at 01.05 hours on 23 March 2006 in Room 7, Ward 6 within the Western General Hospital, Edinburgh (“the Hospital”);

(b) The cause of death was severe soft tissue peri-operative haemorrhage following recent breast surgery to remove breast cancer;

(c) The following were reasonable precautions whereby the death might have been avoided:

- i. earlier diagnosis that Mrs Wightman was haemorrhaging post-operatively.
- ii. Mrs Wightman being retained in the recovery unit after surgery and not being moved to Ward 6 until her heart rate had stabilised at less than 100bpm.
- iii. Mrs Wightman being transferred to a high dependency unit (HDU) upon discharge from the recovery unit for a minimum period of 24 hours after her surgery.
- iv. catheterising Mrs Wightman either during the operation or at an early stage during her aftercare.
- v. a haemocue having been provided for use on Ward 6 and by nursing staff there having been trained how to use it.
- vi. training and guidance having been provided to nursing staff caring for Mrs Wightman and junior out of hours medical staff providing medical cover for Ward 6 in relation to volumes in drains of patients who had undergone surgery such as Mrs Wightman had and of their relevance to the estimated circulating blood volume of individual patients with reference to their weight.

(d) That the following defects in systems of working contributed to the death :

- i. The failure to have an adequate system in the Hospital of induction and continuing education for nurses responsible for the care of patients who have had breast surgery and for junior medical staff providing out of hours medical cover for such patients on Ward 6.
- ii. the failure to have a system in the Hospital which provided on site out of hours medical cover for Ward 6 with medical staff who had adequate experience or training in relation to post operative breast surgery patients and the complications that can arise from that surgery.
- iii. the failure to have a system in the Hospital of handover from the breast surgery medical staff to the junior house doctor on call for Ward 6 out of hours between 17.30 and 23.00 or to the Hospital at Night Team or to have a system of handover from the junior house doctor on call for Ward 6 out of hours between 17.30 and 23.00 and the Hospital at Night Team.

(e) That the following facts are relevant to the circumstances of the death:

- i. Mrs Wightman was prescribed Enoxaparin, which has been linked with severe post-operative bleeding, as an anticoagulant.

- ii. Young fit patients are able to appear well even when they have lost substantial volumes of blood as their bodies compensate for the loss until a critical point is reached.
- iii. The records relating to Mrs Wightman's care in the Hospital were incomplete and contained inconsistencies, inaccuracies, alterations and errors.
- iv. Ward 6 of the Hospital lacked adequate practical oversight and management.

NOTE:

[1] This is an inquiry instituted by the Lord Advocate under the discretionary provisions of the Fatal Accidents and Sudden Deaths Inquiry Act 1976. It was considered by the Lord Advocate to be expedient in the public interest that such an inquiry should be held into the circumstances of the death of Marlene Patricia Wightman (date of birth 16 August 1956) who died on 23 March 2006 within the Western General Hospital, Edinburgh ("the Hospital").

[2] Mrs Wightman had previously been diagnosed as suffering from cancer in her left breast and had undergone a mastectomy with auxiliary node clearance and flap reconstruction at the Hospital on 22 March 2006.

[3] The initial diet which was assigned for the inquiry was postponed due to an essential witness working abroad and to the family of the deceased having raised certain matters which required investigation by the police. After a number of

preliminary hearings the inquiry commenced on 28 April 2008 and continued with evidence over 40 days from 29 April to 2 May, 6, 7 and 9 May, 1 to 5 September, 8 September, 10 to 12 September, 16, 17 and 30 September, 1 to 3 October, 3 to 5 November, 18, 19, 25 November, and 15 to 17 December all days in 2008. Evidence was concluded on 26 and 27 January 2009. The Inquiry was concluded with a hearing of submissions on behalf of the parties who had appeared and been represented on 2 and 3 March 2009. I had required submissions to be made in writing and lodged with circulation amongst the parties prior to that hearing. Those written submissions together with supplementary written submissions produced in the course of the hearing were helpful. As they run in total to hundreds of pages I do not rehearse them other than in the context of my conclusions relating to the various discrete issues which are relative to my determination.

[4] The evidence at the inquiry came from the oral testimony of a number of witnesses and from the productions introduced by some of the parties, principally by the Crown. Having regard to the complexity of some of the medical evidence, the length of the Inquiry and the sporadic spread of the diets I considered that it was necessary to call for a transcription of the tape recording of the evidence, copies of which were made available to each of the parties. It is clear upon reading these transcriptions that there are a variety of errors and gaps occurring. However, no issue was made in respect of that by any of the parties at the Inquiry.

[5] The parties in this Inquiry were as follows:

The Lord Advocate was represented by Ms Pauline Shade, Procurator Fiscal Depute; Mrs Wightman's family were represented by Mrs Motion, solicitor.

Nurse Claire Smith was represented at the Inquiry by Mrs Watts, solicitor.

Dr Alastair Greystoke and Dr Kate Mitchell were represented by Mr Jessiman, solicitor.

Mr Glyn Neades and Dr Cullen were represented by Ms McGregor, solicitor.

Lothian Health Board were represented by Mr Fitzpatrick, advocate.

[6] Evidence was led by the Procurator Fiscal from the following witnesses in order of their testimony:

Mr Thomas Wightman, the husband of the deceased.

Mr John Wightman, the son of the deceased.

Miss Lisa Wightman, the daughter of the deceased.

Staff Nurse Claire Smith, who was responsible for the nursing care of Mrs Wightman after her surgery on Ward 6 of the Hospital between the hours of approximately 14.00 to 20.00 on 22 March 2006.

Mr Michael Dixon, consultant specialist breast surgeon, who, along with an assistant surgeon, Miss Katherine Krupa, performed breast surgery upon Mrs Wightman. Mr Dixon's CV forms Crown production 17.

Dr Juan Carlos Arango, the forensic pathologist who carried out a post mortem investigation upon Mrs Wightman.

Staff Nurse Gillian Edgar, who was responsible for the nursing care of Mrs Wightman on Ward 6 after her surgery during the night shift at the Hospital between the hours of 19.30 on 22 March and 08.00 23 March 2006.

Nurse Sarah McDonald, who was also on duty on Ward 6 during the nursing nightshift on 22 March 2006.

Charge Nurse Fiona Taylor, who was on the nursing nightshift on 22 March through to 23 March 2006 working on Ward 2 of the Hospital. She was acting as a resource nurse for nurses being a point of contact regarding staffing issues or clinical concerns for five wards in the Hospital during that nightshift.

Dr Kate Mitchell, who was a Foundation Year 1 doctor working in the Urology Unit of the Hospital between 13.00 and 23.00 on 22 March 2006. From 17.00 until 23.00 of that shift Dr Mitchell was the on-call junior house officer responsible for all of the urology patients on three wards as well as any outlying patients including oncology and breast surgery patients in the Breast Unit on Ward 6 of the Hospital.

Staff Nurse Seona Ferguson, who was a recovery nurse working from 09.00 to 21.00 on 22 March 2006 in the Recovery Unit adjacent to the operating theatre where Mrs Wightman was initially taken after her surgery.

Dr Alastair Greystoke, who was acting registrar in charge of the Hospital at Night (HAN) team from 21.00 on 22 March until 09.00 on 23 March 2006. During these hours Dr Greystoke was the senior doctor in charge of all the patients in the Hospital apart from those in the intensive care and the high dependency units.

Mr Glyn Neades, consultant specialist breast surgeon, who was on call on the evening of 22 March and overnight until the day shift on 23 March 2006 in respect of the breast surgery patients on Ward 6 of the hospital. Mr Neades' CV forms Crown production 50

Staff Nurse Alice Whigham, who was a recovery nurse working alongside Staff Nurse Seona Ferguson in the recovery unit on 22 March 2006 providing nursing care for Mrs Wightman while she remained in the recovery unit.

Mr Paul Dale, senior biomedical scientist employed at the Haematology Department of the Hospital. At the time of Mrs Wightman's death he was chief biomedical scientist in transfusion there and was responsible for the blood transfusion laboratory.

Senior Nurse Practitioner Alistair Meldrum, who was duty nurse manager and site co-ordinator at the Hospital from 21.00 on 22 March until 08.30 on 23 March 2006 with responsibility for staffing, attending emergencies and supporting the nursing staff on duty.

Dr Jonathan Foley who was attached to the Haematology Unit of the Hospital and who from 21.00 on 22 March until 09.00 on 23 March 2006 was a senior house officer as part of the HAN Team.

Dr Charlotte Scott, trainee anaesthetist, who was working in the Hospital from November 2005 to April 2006 and on duty on the nightshift at the Hospital on the night of Mrs Wightman's death.

James Wallace, Biomedical Scientist, who was employed in the Hospital Haematology Department. He was on night shift duty when blood was requested for transfusing into Mrs Wightman.

Charge Nurse Lorraine Corrigan, who was responsible for the general management of Ward 6 on a daily basis.

Miss Katherine Krupa, Consultant Surgeon, who was employed at the Hospital on a fellowship from October 2005 to the end of March 2006 and who assisted Mr Dixon during Mrs Wightman's operation.

Ms Kathryn Brechin, Clinical Nurse Manager for Cancer and Palliative Services at the Hospital.

Dr Margaret Cullen, Consultant Anaesthetist at the Hospital. Dr Cullen was the anaesthetist during Mrs Wightman's surgery. Dr Cullen's CV forms Crown production 61.

Dr Terence Savaridas, Senior House Officer in Colorectal Surgery in the Hospital from February to August 2006. Dr Savaridas was the on call surgical Senior House officer for colorectal surgery and oncology during the nightshift from 22 to 23 March 2006.

Charge Nurse Elizabeth McLatchie, Breast Cancer Clinical Nurse Specialist in the Western Infirmary, Glasgow and the National Breast Screening Unit in Glasgow. Miss McLatchie was instructed by the Crown as an expert nursing witness and provided a report at the request of the Lord Advocate in connection with the nursing care received by Mrs Wightman after her surgery forming Crown production 9 .

Professor Alistair Thompson, Professor of Surgical Oncology at the University of Dundee, Ninewells Hospital, Dundee was instructed by the Crown as an expert medical witness. Professor Thomson's CV forms Production 62 for the Crown. Professor Thompson prepared a report at the request of the Lord Advocate which forms Production 6.

[7] On behalf of Dr Cullen, Ms McGregor led evidence from **Dr William Frame**, Consultant Anaesthetist at Glasgow Royal Infirmary. Dr Frame's CV and a report prepared by him were lodged as productions for Dr Cullen.

Findings in Fact

[8] On the basis of the evidence led, I make the following findings in fact;-

[1] Marlene Patricia Wightman (Mrs Wightman) was born on 16 August 1956. She resided latterly at 20 Woodburn Grove, Dalkeith, Midlothian.

[2] In January 2006 Mrs Wightman discovered a lump in her left breast. She was referred by Dr Vivien Ireland, her general practitioner, on 20 January 2006 to the Breast Clinic at the Hospital.

[3] Mrs Wightman was assessed at the Breast Clinic on 17 February 2006. A diagnosis was made of Grade II cancer of the left breast. An initial investigation did not reveal any spread of the cancer. Mrs Wightman was considered to be suitable for surgical intervention by means of a mastectomy and clearance of the lymph nodes. She was given the option of breast reconstruction.

[4] After discussion between Mrs Wightman and Consultant Surgeon Mr Michael Dixon on 15 March 2006 it was agreed that she would have an extended *latissimus dorsi* flap reconstruction at the same time as the mastectomy operation. The reconstruction would be carried out by removing a flap of skin and muscle from the *latissimus dorsi* on her back and swinging it round and under her armpit on a tendon before relocating it in the site of her left breast after the mastectomy had been performed. The flap of transplanted tissue would retain its own blood supply from two small blood vessels when transferred. In order for the flap to remain viable after transplant it was essential for it to retain a good supply of blood.

[5] Mrs Wightman was scheduled to have her surgery at the Hospital on 22 March 2006. She was admitted to Ward 6 there on the evening of 21 March. On admission it was recorded that her height was 4 feet 11 inches, her weight was 48 kilograms, her heart rate was 88 beats per minute (bpm) and her blood pressure was 132/88.

[6] Mrs Wightman was taken into the operating theatre at 08.30 on 22 March 2006. She had been prescribed diazepam as a pre-medication by the anaesthetist, Dr Margaret Cullen. The anaesthetic record records (pages 3 to 6 of Crown production 3) that Mrs Wightman's heart rate was 115 bpm and her blood pressure was 150/70 at 08.30. Between 08.30 and 09.00 Dr Cullen commenced anaesthesia of Mrs Wightman. At 09.00 her heart rate was recorded as 100 bpm and her blood pressure was recorded as 99/65. Throughout the operation Dr Cullen controlled Mrs Wightman's heart rate and blood pressure by the administration of a variety of drugs at appropriate times.

[7] A heart rate of over 100 beats per minute is regarded as high and is described as tachycardia. A systolic blood pressure of around 100 or less is regarded as low and is described as hypotension.

[8] The surgery lasted for over three hours. Mrs Wightman was placed on her side at the initial part of the operation. This enabled Mr Dixon to carry out the mastectomy and enabled Dr Krupa simultaneously to raise the flap of tissue from the *latissimus dorsi*. Once the mastectomy and the raising of the flap had been performed, Mrs Wightman was turned onto her back at around 11.20 so that the reconstruction could be carried out.

[9] Once the flap had been transplanted Mr Dixon was anxious about the sufficiency of its blood supply. Mrs Wightman's blood pressure had dropped to 70/48 just before 11.25. Her heart rate was 89bpm. Mr Dixon asked Dr Cullen to raise Mrs Wightman's blood pressure so that the blood flow into the flap would be increased.

[10] Dr Cullen administered meteraminol and Mrs Wightman's blood pressure rose to 137/80 at 11.30. Her heart rate was 79 bpm.

[11] Mrs Wightman's blood pressure fell again to 110/65 at 11.40. Her heart rate was 80 bpm. Three milligrams of ephedrine were then administered by Dr Cullen. The blood pressure rose to 130/79 and the heart rate rose to 84 bpm at 11.50. The blood pressure dropped to 121/79 at 11.55. The heart rate was 86 bpm. Dr Cullen administered a further three milligrams of ephedrine, 1 gram of paracetamol and 50 milligrams of cyclasine.

[12] At around 11.55 Mr Dixon administered nine milligrams of papaverine on some of the small blood vessels at the reconstruction site in order to improve the blood supply to the flap.

[13] At 12.10 Mrs Wightman's heart rate is recorded at 84 bpm and her blood pressure at 120/79.

[14] The operation ended at around 12.30. Mrs Wightman lost 335 millilitres of blood in theatre. A person's circulating blood volume is relative to their weight. Mrs Wightman was petite, weighing 48 kilograms. Her circulating blood volume would have been calculated as 3360 to 3600 millilitres. Four drains were placed in the site of her wounds. Thereafter she was transferred from the theatre to the recovery room.

[15] Whilst Mrs Wightman was in the recovery room she was cared for by Staff Nurse Seona Ferguson and Staff Nurse Alice Whigham. Mrs Wightman was the only patient for whom they were caring at that period. Another patient was undergoing surgery which was not expected to be completed until the end of the afternoon of 22 March.

[16] Mrs Wightman's breathing was assisted through intubation throughout the operation and she remained intubated when first returned to the recovery room. She is recorded in the recovery room chart as remaining sedated with a sedation score of three, defined as severe somnolent and difficult to rouse up until 13.00.

[17] Between 12.25 and 12.45 Mrs Wightman's heart rate rose from 85 bpm to 131 bpm. Her blood pressure is recorded as 135/65 at 12.25, 109/55 at 12.30 and 125/80 at 12.45. At around 12.45 the intubation was removed and Mrs Wightman was thereafter breathing without assistance. Mrs Wightman was regaining consciousness between 13.00 and 13.45.

[18] In the recovery room a drain chart was commenced on which the nurses who were responsible for Mrs Wightman's care were to record throughout the day at

regular intervals the levels of blood and fluid which had collected in each of the four individual drains which were in place in her wounds. The recovery nurses completed entries in the drain chart recording the amounts in the individual drains at 12.45, 13.00, 13.15, 13.30 and 13.45 showing drainage totalling 150mls, 150mls, 230mls and 230mls respectively at those times. A flap chart was commenced which was to record the state of the transplanted tissue in the reconstruction. A fluid balance chart was commenced which was to record the fluid introduced into Mrs Wightman intravenously and orally, any fluid lost by vomiting and her urine output. Mrs Wightman was connected to patient control anaesthesia (PCA) with a handset so that she would be able to self-administer pain controlling drugs as and when she felt the need to do so.

[19] The recovery unit was adjacent to the operating theatre in the Breast Unit. Mr Dixon reviewed Mrs Wightman at least 4 times in the recovery unit. These reviews were not recorded.

[20] The anaesthetic records show that in recovery Mrs Wightman's heart rate was 125 bpm at 13.00 and 13.15, 120 bpm at 13.30, and 115 bpm at 13.45. Her blood pressure at those times was 108/75, 110/75, 118/82 and 118/72 respectively. The recovery nurses discussed these observations with Dr Cullen. Whilst Mrs Wightman was tachycardic and hypotensive in comparison with her heart rate and blood pressure on admission Dr Cullen considered that, as the heart rate was starting to decrease and the blood pressure was starting to rise, the trend in these observations was sufficient to allow Mrs Wightman to be discharged from recovery onto Ward 6.

[21] Mrs Wightman was transferred from the recovery unit to Ward 6 at around 14.00 hours. She was placed in a single-bedded room, Room 7.

[22] The nursing staff on the day shift on Ward 6 on 22 March were staff nurse Claire Smith, Elaine O'Neill, Joyce Tweedie and Sharon Smith. The nurse who would normally be responsible for the overall running of the ward, charge nurse Lorraine Corrigan, was absent from work that day. As Claire Smith was the most senior nurse on the ward she was responsible for its general management whilst carrying out her own duties. She undertook to be the nurse responsible for Mrs Wightman's care on the ward. Elaine O'Neill was to be the nurse responsible for the care of the patient who was undergoing surgery during the afternoon of 22 March once she was returned to ward 6.

[23] When she was transferred from recovery to Ward 6 Mrs Wightman remained attached to the four drains from her wounds. She was on portable oxygen. Once she was in her bed in Room 7, the portable oxygen was replaced by oxygen delivered by a tube leading from the wall by the bed. The anaesthetic chart, recovery chart, PCA chart, drain chart, fluid balance chart, flap chart and operative note were delivered to the ward with Mrs Wightman. Mrs Wightman and her documentation were transferred by the recovery nurses into the care of Claire Smith on Ward 6. The recovery nurse showed Claire Smith the recovery room observation chart and pointed out that Mrs Wightman's blood pressure and pulse were both abnormal in that she was hypotensive and tachycardic.

[24] Shortly after 14.00 hours on Ward 6 Mr Dixon reviewed the condition of Mrs Wightman's flap reconstruction. He was satisfied with the vascularity and viability of the flap. This review was not recorded.

[25] A pro forma Post Operative Nursing Care Plan was provided for nurses on the ward to complete in respect of the planned care for individual patients when they were returned from recovery after surgery. Claire Smith did not complete any care plan in respect of Mrs Wightman.

[26] An early warning score observation (SEWS) chart was commenced to record the observations which were to be carried out by the nursing staff on Mrs Wightman. Observations were to be carried out and noted regarding her respiration rate, her oxygenation rate, her temperature, her systolic blood pressure, her heart rate, her neuro-response, her urine output, her pain score, her nausea score, her bowel movement and her weight. Different levels of these individual observations are recorded in white, yellow, peach, red or green boxes. An observation which falls to be recorded in a white box scores 0; one which is recorded in a yellow box scores 1; one which is recorded in a peach box scores 2; and one which is recorded in a red box scores 3. At any given point of observation the individual score of each observation noted in terms of where it required to be recorded on the SEWS chart required to be added up by the nurse carrying out the observations. The instructions direct that the pain score is not to be added to the SEWS score.

[27] The chart gives directions that the SEWS score must be calculated every time a patient's observations are recorded. If a SEWS score of 4 or more is reached,

the nurse is directed to call the appropriate doctor and nurse in charge applying a set of guidelines which are set out in the chart. If the patient has a SEWS score of four or more or there is concern with a patient's condition the nurse is directed to call a junior doctor or a senior nurse or nurse practitioner. If the junior doctor cannot attend within 20 minutes they should arrange a deputy. If the practitioner or junior doctor is unable to attend within 20 minutes or the SEWS score increased by two or the patient is deteriorating the nurse is directed to call the appropriate senior house officer or registrar and a senior nurse and nurse practitioner. If a doctor is unable to attend within 10 minutes or the SEWS is increasing by two, or the patient is deteriorating the nurse is to call the appropriate Registrar or consultant and to consider an intensive care unit referral or a review of the treatment plan. If there is an early warning score of six or more at any observation point or the patient is rapidly deteriorating the nurse is instructed to bypass calling a junior doctor or senior nurse or nurse practitioner, and to call directly a Senior House Officer, registrar and a senior nurse or nurse practitioner and follow the procedures set out thereafter.

[28] The SEWS chart instructions gives directions of what should be done if a patient has a systolic blood pressure of less than 100. It directs that the patient's urine output should be reviewed. It directs in block capitals "TREAT UNDERLYING CAUSE" and invites consideration inter alia of hypovolaemia (low circulating blood volume) with the underlying cause of dehydration or blood loss.

[29] The SEWS chart directs the recording of the neuro-response of a patient as being alert, scoring 0; verbal, scoring 1; pain, scoring 2; and unresponsive, scoring 3.

[30] In relation to pain the chart directs that no pain should be scored at 0; mild pain should be scored at 1-3; moderate pain should be scored at 4-5; and severe pain should be scored at 6-10.

[31] In relation to nausea score, no nausea is scored at 0, nausea is scored at 1, nausea/vomiting is scored at 2, and persistent nausea and/or vomiting is scored at 3.

[32] Mrs Wightman's pain score at 14.00, 14.30, 15.00, 16.05, 17.00 and 19.00 are recorded at 0. Her nausea score is also recorded at 0 at these points of recorded observations notwithstanding that Mrs Wightman was complaining of nausea and was sick around 19.00 and the PCA chart records a pain score of 5-7 at 16.00 and of 5 at 17.00. No nausea or pain score is recorded on the SEWS chart after the observations said to be recorded at 19.00 whilst Mrs Wightman complained of nausea and pain in the abdomen later on in the evening.

[33] There is provision on the SEWS chart for the patient's weight to be recorded in two places. In the case of the SEWS chart which was prepared for Mrs Wightman her weight as recorded in her admission records is not recorded anywhere.

[34] The SEWS chart prepared in relation to Mrs Wightman records that on her admission on 21 March 2006 her blood pressure was 135/85 and her heart rate was 85 bpm. At 14.00 it records that her blood pressure was 109/68, her heart rate was 112bpm and her neuro response was verbal. The SEWS score is assessed and recorded in total to be 3.

[35] The SEWS chart records that at 14.30 Mrs Wightman's blood pressure had fallen to 95/68, her heart rate was 110bpm and her neuro response was verbal. The SEWS score is totalled at 3. In terms of the scoring system on the chart it should have been 4, a score at which the chart directs the nurse carrying out the observations to call a junior doctor and a senior nurse or nurse practitioner. This was not done by Claire Smith at that time.

[36] The SEWS chart records that at 15.00 Mrs Wightman's blood pressure had risen to 105/68 and her heart rate had fallen to 108 bpm. Her neuro response is recorded as verbal. The SEWS score is recorded in total as 1 when, if following the directions on the chart, it should have been 2.

[37] The SEWS chart records that at 16.05 Mrs Wightman's blood pressure was 105/65 and her heart rate was 118 bpm. The neuro response is recorded as verbal. The SEWS score is totalled as 3. At around that time Miss Krupa reviewed Mrs Wightman. Claire Smith was in the room. Miss Krupa looked at the observations recorded on the SEWS chart. She checked the quantity of fluid in the four drains attached to Mrs Wightman's wounds and was not concerned by it. Following this she prescribed increased intravenous fluid for Mrs Wightman. She was concerned about the viability of the flap. She made no record of this review. At 16.10 Claire Smith connected 500mls of saline to Mrs Wightman to be administered by a drip as per the instructions of Miss Krupa who informed Mr Dixon of her observations and actions.

[38] At 16.45-17.00 Mr Dixon reviewed Mrs Wightman for the specific purpose of checking the vascularity and viability of the flap reconstruction. Within that same

period Dr Cullen reviewed Mrs Wightman to check that she had sufficient pain relief and fluids. Neither Mr Dixon nor Dr Cullen checked the drains or made a record of their respective reviews.

[39] At 17.00 Mrs Wightman's blood pressure is recorded at 110/72 and her heart rate at 115 bpm. Her neuro response is recorded as verbal. The SEWS score is recorded as 3.

[40] On her way out of the hospital at 17.45 Miss Krupa briefly reviewed Mrs Wightman by looking at the flap. She did not look at the SEWS chart or the drain chart. Miss Krupa had no concerns regarding Mrs Wightman's condition and took no further action.

[41] At 18.45 Mr Thomas Wightman, Mr John Wightman(John) and Miss Lisa Wightman(Lisa) arrived on ward 6 to visit Mrs Wightman. Mr Wightman and Lisa sat on Mrs Wightman's left-hand side of the bed where the four drains from her wounds were situated on the floor. John sat on Mrs Wightman's right-hand side beside a drip and monitor. One drain was full, one drain was three-quarters full and two were one-quarter full. The contents of the drains were a red burgundy colour. The drip feeding into Mrs Wightman's arm was empty. A student nurse named Rona was informed of that by the family and Claire Smith arrived to change the fluid bag. No check was made by either nurse of the drains.

[42] At around 19.00 the student nurse returned and carried out observations upon Mrs Wightman. No observations had been carried out by Claire Smith after 17.00.

The student nurse was unsupervised by any qualified nurse. She did not check the drains at that time. At 19.00 Mrs Wightman's blood pressure is recorded in the SEWS chart as 90/63 and her heart rate as 104bpm. Her neuro response is recorded as verbal. The SEWS score is recorded as 2.

[43] Mrs Wightman had appeared quite lively to her family when they first arrived. Shortly after 19.00 she was sick and complained of being too hot. She asked for the lights to be turned down and for a fan. She felt cold and sweaty to the touch. She complained of being in pain and self administered morphine through the PCA. Mrs Wightman continued to be sick. John left the room to fetch Claire Smith who came to Mrs Wightman's room and gave her an injection of Ondansetron. Mrs Wightman continued to be sick. After a few minutes Claire Smith gave her an injection of cyclasine. Mrs Wightman stopped being sick. Claire Smith left the room having made no further examination of Mrs Wightman or of the drains.

[44] The Wightman family remained with Mrs Wightman until 20.05. Between approximately 19.05 and 20.05 no member of the nursing or medical staff entered Room 7. Mrs Wightman's condition appeared to deteriorate at around 19.20. She appeared hot and sweaty, her complexion appeared yellowish and her alertness altered. She was closing her eyes. No member of the nursing or medical staff examined Mrs Wightman's drains throughout the period of the family visit.

[45] The day shift on ward 6 ended at 20.00. The night shift ran from 19.30 to 08.00 the following day.

[46] Claire Smith had not completed the drain chart for Mrs Wightman as the afternoon and evening progressed after she was returned to Ward 6. At some point before the end of her shift Claire Smith completely obliterated an entry on the drain chart which was immediately below the last entry made by the recovery nurses at 13.45 and below that wrote in entries said to be as at 14.30, 15.30, 16.30, 17.30, 18.30 and 19.30. The entries for the four individual drains at those times as recorded total 500mls, 710mls, 870mls, 970mls, 1080mls, and 1200mls respectively.

[47] Between 19.30 and 20.00 Claire Smith and Elaine O'Neill handed over to Gillian Edgar who was a staff nurse. Gillian Edgar was responsible for Mrs Wightman's nursing care during the night shift. Staff nurse Sarah Mc Donald and a clinical support worker were also on that night shift on ward 6. Claire Smith pointed out to Gillian Edgar that Mrs Wightman was tachycardic and hypotensive and told her that Mrs Wightman had passed urine earlier in the day. She also told her that Mrs Wightman had been seen by Mr Dixon and Miss Krupa earlier. Claire Smith phoned Dr Kate Mitchell, the junior house officer who was on call for Ward 6 at that time and requested a review of Mrs Wightman. Thereafter, Claire Smith ended her shift and left Ward 6 without writing up her nursing notes in relation to Mrs Wightman for that shift.

[48] Dr Mitchell was in her first year of practice commencing August 2005 after qualifying as a doctor at university. She started working in the Hospital in the urology unit in February 2006. On 22 March she was on a shift from 13.00 to 23.00. From 17.00 until 23.00 of that shift she was the on call junior house doctor responsible for

all the urology patients on three wards as well as any outlying patients including those in the Breast Unit on Ward 6.

[49] At 20.30 Gillian Edgar carried out observations on Mrs Wightman. She recorded in the SEWS chart that Mrs Wightman's blood pressure was 90/51; that her heart rate was 109 bpm; and that her neuro response was verbal. She did not record any SEWS score, pain score or nausea score. She completed the drain chart with an entry recording drainage totalling 1230mls at that time.

[50] As Mrs Wightman remained hypotensive and tachycardic Gillian Edgar telephoned Dr Mitchell and asked for a review. She gave Dr Mitchell the observations as at 20.30 over the telephone. Dr Mitchell instructed Gillian Edgar to change Mrs Wightman's fluids from dextrose to 500mls of saline and to increase the rate at which the fluid was given. This was done by Gillian Edgar.

[51] Gillian Edgar has recorded in the SEWS chart at 21.00 that Mrs Wightman's blood pressure was 86/59 and her heart rate was 110 bpm. She does not record any SEWS score, neuro response, pain score or nausea score.

[52] At around 21.00 Dr Mitchell arrived on Ward 6 and reviewed Mrs Wightman. She had not received any induction or training relating to breast surgical patients. She had not been given any training on a SEWS chart. Whilst Dr Mitchell had spent 4 weeks on a surgical unit she had never seen a breast surgical patient before reviewing Mrs Wightman. She knew nothing about the extent of the surgery that Mrs Wightman

had had. She had not been given any handover from any staff on Ward 6 when she took on her on call duties at 17.00.

[53] Dr Mitchell checked Mrs Wightman's heart rate, blood pressure, and the drains. Mrs Wightman was sitting up in bed and talking to her. She complained that she was dizzy, nauseous and had abdominal pain though that was not recorded on the SEWS chart. Dr Mitchell noted that her heart rate was 120bpm, her systolic blood pressure was 86 and that there was 1250mls of fluid in the drains. She also noted the theatre blood loss. She did not know what was regarded as an acceptable blood loss in such a patient after surgery. Gillian Edgar told her that Mrs Wightman's drainage losses were normal or slightly more than normal and that the rate of drainage had slowed down over the previous two hours and had reduced to almost nil. Dr Mitchell was reassured by that. Whilst Gillian Edgar told her that Mrs Wightman had passed urine a couple of hours before, Dr Mitchell noted that Mrs Wightman's urine output was nil. She did not note that the SEWS chart recorded that Mrs Wightman's respiratory rate and temperature had steadily decreased from 17.00 to 21.00.

[54] Dr Mitchell diagnosed hypovolaemia i.e not enough circulating blood to support Mrs Wightman's blood pressure and instructed that further fluids should be given to Mrs Wightman intravenously to resuscitate her. She instructed 500mls of gelofusion to be given as fast as it could be which she expected would take 20 to 30 minutes. She prescribed prochlerperaline as an anti – emetic to deal with Mrs Wightman's nausea. Dr Mitchell instructed Gillian Edgar to recheck Mrs Wightman's blood pressure once the gelofusion had been infused and to contact her again if there was no improvement. Dr Mitchell then left Ward 6 to attend other patients on the

Urology Ward and finished her shift at around 23.30. She had received no further contact relating Mrs Wightman. Before leaving the hospital she had had no discussion with any of the HAN Team regarding Mrs Wightman.

[55] Gillian Edgar has recorded in the SEWS chart at 21.30 that Mrs Wightman's blood pressure was 86/59 and her heart rate was 122 bpm. She records that Mrs Wightman's neuro response was verbal. She records that the SEWS score was 3 when in fact it should have been 4. She did not give Mrs Wightman the anti-emetic injection which had been prescribed by Dr Mitchell.

[56] At 22.00 Gillian Edgar records that Mrs Wightman's blood pressure was 98/60 and her heart rate was 120 bpm. She records the neuro response as being verbal and the SEWS score as being 3. It should have been 4. She gave Mrs Wightman an injection of cyclizine.

[57] At 22.30 Gillian Edgar records that Mrs Wightman's blood pressure was 99/54 and her heart rate was 115 bpm. She records her neuro response as being verbal and the SEWS score as being 3. In fact it should have been 4.

[58] At 22.45 Gillian Edgar checked Mrs Wightman and found her to be minimally responsive. Her respiration rate had dropped and her oxygen saturations were unobtainable. Her blood pressure was 77/44 and her heart rate was 120 bpm dropping to 60 bpm over 20 seconds. Gillian Edgar immediately asked Sarah McDonald to call for the urgent attendance of a member of the HAN Team.

[59] The HAN team was set up in October 2005 to provide medical care in the Hospital for patients overnight following upon the requirement to reduce the working hours of junior doctors which was imposed by the European Working Time Directive. The team comprised of three senior nurse practitioners, three/four senior house officers and a registrar. The most junior first year doctors, such as Dr Mitchell, were not included as part of the HAN team in its first year of operation. The HAN team operated on a rota system. For nurses there would be three or four shifts in a seven week period from 21.00 to 09.30. For doctors, each individual speciality in the Hospital which supplied doctors to the HAN team has its own rota. A senior house officer would have three or four of the same shifts every four, six or eight weeks depending on their department. At the beginning of the HAN shift there was a clinical handover from each of the specialities in the Hospital apart from the Breast Unit. A senior nurse co-ordinator deployed the nursing and medical members of the team to where they were required throughout their shift.

[60] At around 23.00 Dr Foley of the HAN Team received a call to attend Ward 6 which he did within minutes. On seeing Mrs Wightman he called for urgent assistance from Dr Greystoke, the Senior Registrar on the HAN team. In the meantime Dr Foley instructed that gelofusion should be transfused into Mrs Wightman as soon as possible. Gillian Edgar recorded the drain volumes totalling 1600mls. Dr Greystoke arrived almost immediately as did a clinical nurse specialist from the HAN team at about 23.10.

[61] Dr Greystoke instructed Sarah McDonald to catheterise Mrs Wightman. It showed that she was not producing urine. The drain bottle on drain 3 was full and was changed.

[62] Both doctors assessed initially that Mrs Wightman was hypovolaemic possibly due to blood loss and possibly due haemorrhage. They carried out further examinations to eliminate a pulmonary embolism, pneumothorax and cardiac arrest as the cause of her condition. Drs Foley and Greystoke took blood samples to check haemoglobin levels and blood gases. They took a chest X-ray and carried out an ECG on Mrs Wightman. Dr Foley requested four units of cross-matched blood from the blood bank in the hospital by way of telephone. James Wallace who was working on the nightshift at the bloodbank told Dr Foley that it would take 40 minutes to produce the requested blood.

[63] Between 23.15 and 23.20 Gillian Edgar telephoned Mr Neades, the consultant breast surgeon on call for Ward 6, at his home. She told Mr Neades that there was a crisis situation in relation to Mrs Wightman and passed the call on to Dr Greystoke. Dr Greystoke had Mrs Wightman's records and charts placed before him by Gillian Edgar who turned the pages as he read out the information to Mr Neades. He told Mr Neades Mrs Wightman's observations in relation to her heart rate, her blood pressure and the volume in the drains as recorded in the drain chart as at 23.00. Mr Neades agreed a diagnosis of hypovolaemia and instructed further fluid resuscitation.

[64] Once Mrs Wightman's blood gas results were available, Dr Greystoke again called Mr Neades for further guidance at about 23.40. The results showed that Mrs Wightman had metabolic acidosis and was gravely unwell. Dr Greystoke told Mr Neades that Mrs Wightman was deteriorating and told him about the blood gas results. He also told him that Mrs Wightman had developed a haematoma on her back and that her reconstructed breast was swollen. Mr Neades considered that Mrs Wightman was most likely hypovolaemic and instructed Dr Greystoke to continue fluid resuscitation. Gelofusion was being administered continuously using manual compression. Mrs Wightman's urine output remained at nil. Her blood pressure was 80/40 and her heart rate was 60 beats per minute. She was bleeding in to the drains.

[65] Between 23.45 and 24.00 Dr Foley called the blood bank and asked when the blood which he had requested could be expected. He was advised that it would take 15-20 minutes and was offered O negative blood in the short term. Dr Foley refused the O negative blood and said that he would wait for fully cross-matched blood.

[66] At around 23.50 to 23.55 Dr Greystoke sought guidance from the on-site surgical house officer Dr Terence Savaridas. Dr Savaridas attended immediately and in minutes diagnosed that Mrs Wightman was hypovolaemic and was in haemorrhagic shock due to loss of blood. He noted 2.25 litres of mostly fresh blood in the drains. Mrs Wightman was hypotensive, tachycardic and on the Glasgow coma scale scored 5. The Glasgow coma scale runs from 1 to 15 with any score of less than 8 being

indicative of severe injury to the brain such as would occur if it were deprived of a blood supply.

[67] At around 23.50 Mr Wightman received a telephone call from the Hospital requesting that he attend. He was given no explanation for this.

[68] Shortly after midnight Dr Savaridas called Mr Neades and advised him that Mrs Wightman was in a serious condition and was likely to go into cardiac arrest. He told him that there were 2.25 litres in the drains. Mr Neades agreed that Mrs Wightman was hypovolaemic. They discussed returning Mrs Wightman to theatre for further surgery. Mr Neades advised continuing fluid or blood resuscitation.

[69] At around 00.12 an arrest call which was broadcast around the Hospital was made because it was thought that Mrs Wightman was about to cardiac arrest. An anaesthetist was required to intubate her airways. She vomited. She was intubated by the on call anaesthetist at the hospital, Dr Charlotte Scott. An electric shock was applied. Charge Nurse Fiona Taylor received the arrest call when she was working on Ward 2 and she attended to assist on ward 6. Alastair Meldrum also responded to the arrest call and went to ward 6.

[70] At around 00.17 Dr Savaridas asked a nurse to make a call to have a major haemorrhage protocol implemented in relation to Mrs Wightman. Alastair Meldrum left Ward 6 to go to the blood bank to collect blood. On the way he met a porter bringing the four units of cross matched blood which James Wallace had produced at Dr Foley's request. He was also bringing platelets as James Wallace was aware that a

major haemorrhage protocol had been implemented and assumed that it was in relation to Mrs Wightman. The blood and blood products arrived on Ward 6 at approximately 00.27. Dr Foley, Dr Greystoke, Gillian Edgar and Sarah McDonald manually transfused the blood and blood products into Mrs Wightman to speed up the transfusion rate. Dr Savaridas telephoned Mr Neades to advise him that Mrs Wightman had gone into cardiac arrest. Further adrenalin was required. There is an arrest trolley kept on each ward in the Hospital which is stocked with on average 8 phials of adrenalin. 13 phials were used on Mrs Wightman and further phials required to be obtained from the trolley in another ward. This did not lead to any significant delay in the administration of adrenalin to Mrs Wightman.

[71] Mr Wightman arrived at the hospital around 00.20. He was asked to wait in a side room. He was able to see inside Room 7 through a reflection on a picture on the wall opposite and saw the resuscitation attempts on Mrs Wightman. Between 00.30 and 00.40 John and Lisa arrived and were shown into the room beside Mr Wightman. A member of Hospital staff sat in the waiting room with the family but provided no information in relation to Mrs Wightman. The resuscitation attempts continued.

[72] The resuscitation attempts were not successful. At 01.05 Mrs Wightman was pronounced dead.

Purpose and Scope of the Inquiry

[9] Section 6(1) of the Fatal Accidents and Sudden Deaths (Scotland) Act 1976 (“the 1976 Act”) provides that at the conclusion of the evidence and any submissions thereon the sheriff shall make a Determination setting out the following circumstances of a death so far as they have been established to his satisfaction:-

- “(a) Where and when the death and any accident resulting in the death took place;
- (b) the cause or causes of death and any accident resulting in the death;
- (c) the reasonable precautions, if any, whereby the death and any accident resulting in the death might have been avoided;
- (d) the defect, if any, in any system of working which contributed to the death or any accident resulting in the death;
- and
- (e) any other facts which are relevant to the circumstances of the death.”

[10] The solicitors and counsel acting for the parties represented at the inquiry made their respective submissions as to how the terms of the subsections of section 6(1) should be interpreted and applied in my Determination. I consider it appropriate at the outset to set out my approach.

[11] It is well settled that a fatal accident inquiry is not the proper forum for determination of questions of criminal or civil liability. In *Black v Scott Lithgow Ltd* 1990 SLT 612 at 615, Lord President Hope said in relation to section 6(1) of the 1970 Act:-

“There is no power in this section to make a finding as to fault or to apportion blame between any persons who might have contributed to the accident. This is in contrast to section 4(1) of the 1895 Act, which gave power to the jury to set out in its verdict the person or persons, if any, to whose fault or negligence the accident was attributable. It is plain that the function of the sheriff at a Fatal Accident Inquiry is different from that which he is required to perform at a proof in a civil action to recover damages. His examination and analysis of the evidence is conducted with a view only to setting out in his determination the circumstances to which the subsection refers, insofar as this can be done to his satisfaction. He has before him no record or other written pleading, there is no claim of damages by anyone and there are no grounds of fault upon which his decision is required.”

[12] Different considerations are relevant in deciding on what determination, if any, is to be made under the various sub-paragraphs of section 6(1) of the Act. In considering the time, place and cause of the death in terms of section 6(1)(a) and (6(1)(b) the Court simply exercises its traditional fact finding functions. In relation to section 6(1)(c) and 6(1)(d) I respectfully agree with Sheriff Kearney in his determination in relation to the death of James McAlpine, issued on 17 January 1986, referred to at paragraph 8-99 of the 3rd Edition of *Sudden Death and Fatal Accident Inquiries* by Ian Carmichael. Sheriff Kearney observes:

“In deciding whether to make any determination (under section 6(1)(d)) as to the defects if any in any system of working which contributed to the death or any accident resulting in the death, the court must, as a precondition to making any such recommendation, be satisfied that the defect in question did in fact

cause or contribute to the death. The standard of proof and rules of evidence (apart from the consideration that evidence did not require to be corroborated) is that applicable in civil business (1976 Act section 4(7)) and accordingly the standard of proof is that of the balance of probabilities.

(b) In relation to making a finding as to the reasonable precautions, if any, whereby the death and any accident resulting in the death might have been avoided (section 6(1)(c)) it is clearly not necessary for the court to be satisfied that the proposed precaution would in fact have avoided the accident or the death, only that it might have done, but the court must, as well as being satisfied that the precaution might have prevented the accident or death, be satisfied that the precaution was a reasonable one.”

Sheriff Kearney goes on to say:

“The phrase ‘might have been avoided’ is a wide one which has not, so far as I am aware, been made the subject of judicial interpretation. It means less than ‘would, on the probabilities have been avoided’ and rather directs one’s mind in the direction of lively possibilities.”

Sheriff Kearney’s observations and interpretation of the phrase “might have been avoided” has been referred to and adopted with approval in many determinations since then. I also adopt the view which he expresses in the James McAlpine Determination in relation to section 6(1)(e):-

“... the provisions of section 6(1)(e) are very widely stated and, in my view, entitle and indeed oblige the court to comment on and where appropriate make recommendations in relation to, any matter which has been legitimately examined in the course of the Inquiry as to a circumstance surrounding the

death if it appears to be in the public interest to make such comment or recommendation.”

I also respectfully adopt the opinion of Sheriff Fiona Reith Q.C. in her Determination in relation to the death of Sharman Weir issued on 23 January 2003:-

“In my opinion a Fatal Accident Inquiry is very much an exercise in applying the wisdom of hindsight. It is for the sheriff to identify the reasonable precautions, if any, whereby the death might have been avoided. A sheriff is required to proceed on the basis of the evidence adduced without regard to any question of the state of knowledge at the time of the death. The statutory provisions are concerned with the existence of reasonable precautions at the time of the death and are not concerned with where they could or should have been recognised. They do not relate to the question of foreseeability of risk at the time of the death which would be a concept relevant to the context of a fault-finding exercise, which this is not. The statutory provisions are widely drawn and are intended to permit retrospective consideration of the matters with the benefit of hindsight and on the basis of the information and evidence available at the time of the Inquiry. There is no question of the reasonableness of any precaution depending upon the foreseeability of risk. In my opinion, the reference to reasonableness relates to the question of availability and suitability or practicability of the precautions concerned. ... In my opinion, the purpose of a Fatal Accident Inquiry is to look back, as at the date of the Inquiry, to determine what can now be seen as the reasonable precautions, if any, whereby the death might have been avoided, and any other facts which are relevant to the circumstances of the death....The purpose of any conclusions drawn is to assist those legitimately interested in the

circumstances of the death to look to the future. They, armed with the benefit of hindsight, the evidence led at the Inquiry, and the Determination of the Inquiry, may be persuaded to take steps to prevent any recurrence of such a death in the future.”

[13] I set out the foregoing as it was submitted to me after the conclusion of the evidence in this inquiry that I was not entitled to make any findings under section 6 based upon hindsight. I disagree with that approach under reference to the views of Sheriff Reith already referred to and to those of Sheriff William Holligan following an Inquiry into the death of John Kelly:-

“In my opinion the provisions of section 6(1)(c) and (d) fall to be applied objectively and with the benefit of hindsight. Section 6(1)(e) gives some support to this interpretation. There may be circumstances which are relevant to the death but which might not have been established to have had a causal link.”

[14] The submission which was also made on behalf of several of the parties at the Inquiry to the effect that I should consider the reasonableness of the actings of individuals in their dealings with Mrs Wightman when considering section 6(1)(c) is, in my view, incorrect. Following Sheriff Reith in her determination to which I have referred I consider:

“That would involve an assessment of what was known and understood, or should have been known and understood, by those involved at the time. That would raise questions of foreseeability of risk in the light of professional thinking at the time. It seems to me that such an approach would more

properly be related to questions of fault, with which a Fatal Accident Inquiry is not concerned.”.

Section 6(1)(a) of the Act - When and where the death and accident resulting in the death took place.

[15] This was not a contentious matter. The time of death was incorrectly noted in the post mortem report, Production No 2 for the Crown, as 10.05 hours on 23 March 2006. Dr Arango, who carried out the post mortem examination, confirmed that was a typing error. The time of death was 01.05 on 23 March 2006, as was confirmed in the evidence of Drs Foley, Greystoke and Savaridas. Dr Greystoke pronounced life extinct at that time.

Section 6(1)(b) of the Act - The cause or causes of death and any accident resulting in the death.

[16] Whilst the cause of death as stated in the death certificate is (a) severe soft tissue peri-operative haemorrhage due to (or as a consequence of) (b) recent breast surgery due to (or as a consequence of) (c) breast cancer, it was Dr Arango’s evidence that Mrs Wightman died as a result of a haemorrhage. She did not die as a result of breast cancer. She underwent surgery because she had breast cancer and after that surgery was carried out she had a severe bleeding which Dr Arango stated was the most likely cause of death. The source of that bleeding was not established at post mortem. In the opinion of Dr Arango it was most likely to have been bleeding from a small vessel or vessels in the soft tissue. This opinion was confirmed by Professor

Thompson in his evidence. He considered that if a large vessel of 5-10mm had been cut or bleeding it would have been immediately apparent. In his opinion the pattern of bleeding or haemorrhage was probably from one or perhaps more 2 or 3mm in diameter vessels and he would not have expected that whichever vessel or vessels had been bleeding to be evident in post mortem examination. He explained that there are very many vessels and in a good deal of living patients who return to theatre for re-operation one, two or more bleeding points can be found. However, at post mortem, unless there was an obvious place where the bleeding had come from it would be impossible to be certain that the bleeding was from a particular point in the operative site.

Section 6(1)(c) - The reasonable precautions, if any, whereby the death and any accident resulting in the death might have been avoided.

[17] The question to be answered under this subsection is what reasonable precautions could have been taken which might have prevented Mrs Wightman's death by haemorrhage.

[18] When Mr Dixon met with the Wightman family in the Hospital on the morning of 23rd March after Mrs Wightman's death he told them that her death was preventable, that it should never have happened and that they should consult a lawyer. He had been extremely distressed that it had occurred. This was confirmed in evidence by the Wightman family and Mr Dixon himself. Later, Mr Dixon had completed a mortality report, Crown production 16, in which he stated in conclusion

that the death of Mrs Wightman was in his view a preventable death. In the course of the inquiry it was accepted by every medical and nursing witness that Mrs Wightman's death was preventable and need not have occurred. Nevertheless, submissions were made on behalf of some of the parties to the inquiry that I should not make any determination under section 6(1)(c). I cannot accept those submissions as I consider that the evidence dictates otherwise.

(i) Earlier diagnosis that Mrs Wightman may have been haemorrhaging followed by appropriate investigation and treatment

[19] The first step in preventing someone from dying as a result of an ongoing haemorrhage is to recognise that that is what may be or is in fact happening. It is clearly the case that Mrs Wightman's death might have been avoided if the fact that she was haemorrhaging had been diagnosed at a point when it would have been possible to stop the bleeding and save her life. This, in my opinion, is really the central issue in relation to section 6(1)(c) in this inquiry and the discrete precautions which I have determined as being reasonable under this subsection are all relative to it.

[20] Whilst Mrs Wightman was seen by a variety of medical and nursing staff throughout the day after her operation from around 12.30 it was not recognised that she may be haemorrhaging until around 23.00 by which time she had lost such a large proportion of her circulating volume of blood that she was extremely ill. I consider that the evidence clearly leads to the conclusion that it would have been reasonable to diagnose that Mrs Wightman may have been bleeding at various times much earlier

on in the day and to make appropriate investigations by checking her haemoglobin and by catheterisation. As the day wore on and her drain losses increased it would have been reasonable to diagnose that she was bleeding and to make appropriate investigations by checking her haemoglobin and by catheterisation simply to confirm that that was the case. When the possibility that she was bleeding could be considered to have passed to a certainty, urgent action to stabilise Mrs Wightman's condition by resuscitation with blood and blood products might have been carried out successfully until quite late in the day and could have been followed by a return to theatre to trace and stop the bleeding.

[21] The significance of the amount of blood and fluid in the drains is relative to a patient's size and weight which dictates the amount of that patient's circulating blood volume. The heavier a person is the more circulating blood volume they will have. Mrs Wightman was extremely petite, being 4 feet 11 inches in height and 48kgs in weight. Dr Cullen gave evidence about her requiring a smaller than normal intubation tube because of the small diameter of her airway. Mr Dixon gave evidence of her veins being small in diameter when transferring the flap from the *latissimus dorsi* and retaining its blood supply when it was being placed for reconstruction. Dr Cullen said that there were a number of ways to calculate circulating blood volume. She considered that Mrs Wightman's circulating blood volume would have been 3600mls.

[22] The amount of blood loss suffered as a result of the type of surgery which Mrs Wightman had varies from patient to patient. The amount of blood lost by a particular patient has to be considered in relation to their other physiological

parameters such as heart rate, blood pressure and urine output. Serous fluid which is generated at a wound site as well as blood goes into the drains post-operatively. The proportion of the blood to fluid is indicated by the colour of the fluid i.e. the deeper red the fluid the more blood it contains.

[23] Going back to the operation itself, Mr Dixon gave evidence that at the conclusion of the operation Mrs Wightman was not bleeding. His evidence on that point was not challenged and there was no evidence to suggest otherwise. Accepting that Mrs Wightman began to bleed after the operation, there was a difference of opinion amongst the medical witnesses as to when thereafter the presentation of Mrs Wightman as observed at different times by the nursing and medical staff could have suggested that Mrs Wightman was showing signs of haemorrhaging which required to be investigated. Every one of those witnesses agreed that it would have been possible to do so long before that diagnosis in fact occurred.

[24] The expert surgical witness for the Crown, Professor Thompson, considered that, as Mrs Wightman had been stabilised with a systolic blood pressure of 110 or more and a heart rate of 80-85 bpm over the last 45 minutes of the surgical procedure and her systolic blood pressure had been 135 and her heart rate 85 bpm upon admission to the Hospital, it was a matter of concern that her blood pressure dropped in recovery. It fluctuated from 109, to 125, to 108, to 109, to 120, to 115 between 12.30 and 13.45. Over that same period her heart rate rose from 95 to 132 dropping to 125 then to 120 and 115 bpm. His opinion was that by considering that alongside the volumes in the drains as recorded taken together with the theatre blood loss there were indications that Mrs Wightman may have been haemorrhaging in recovery and

again at 14.00 which required investigation. In his view a full blood count should have been taken at that time to check her haemoglobin levels and Mrs Wightman should have been catheterised to check her urine output, both of which procedures would provide indicators of loss of circulating blood volume if that were in fact occurring.

[25] It was his evidence that, whilst breast surgery is a very safe procedure resulting in few complications, the most common complication which can occur is blood loss. That was confirmed by Mr Dixon and Mr Neades in their evidence. That being so, in Professor Thompson's opinion, when Mrs Wightman was showing symptoms which could be indicative of blood loss it would have been reasonable to investigate if that was in fact occurring. The possibility of blood loss should have been eliminated and if blood loss was found to be occurring it could have been treated.

[26] It was accepted by all the medical and nursing witnesses that high heart rate and low blood pressure coupled with lack of urinary output are indicative of loss of circulating blood volume which in turn is an indication of bleeding. The 24 hour fluid balance chart in relation to Mrs Wightman, page 58 of Crown production 3, was intended to record her intake of fluid orally and intravenously alongside her output in terms of the passage of urine or emission of gastric fluid when being sick. There is provision in the chart for the times, nature and volume of these events to be recorded. There is no record of Mrs Wightman having passed urine at any time after her operation.

[27] The issue of urine production is important because it is an indicator of the extent of perfusion of the kidneys by circulating blood. It was the evidence of the expert nursing witness for the Crown, Elizabeth McLatchie, that as at 14.00 Mrs Wightman may or may not have been producing urine but she would not have been expected to have passed any at that passage of time after her surgery. She would have been expected to do so by later on in the afternoon. It was the evidence of Mr Dixon, Professor Thompson and Dr Cullen that it is the hourly rate of production of urine which is significant and beyond that the colour and quality of the urine. When urine is passed naturally into a container and measured there is no way of knowing at what rate per hour that urine was produced by the kidneys. It is for that reason that Professor Thompson considered that it was appropriate when haemorrhaging is suspected to catheterise a patient to check the perfusion of the kidneys. That view was shared by Mr Dixon, Dr Cullen and Mr Neades. Whilst lack of urine production can be indicative of other problems, as spoken to by Dr Cullen, it is a strong indicator of lack of circulating blood volume and therefore blood loss.

[28] Leaving aside the issue of urinary output it was the opinion of Professor Thompson that whilst Mrs Wightman remained in recovery and at 14.00 hours the blood pressure, heart rate and, in particular, the drain volumes added to the theatre blood loss relating to Mrs Wightman gave an indication that she was losing blood which merited further investigation. It would have been appropriate to check her haemoglobin in a full blood count and to catheterise her to check her urine output. Professor Neades felt that there probably would have been benefit in checking Mrs Wightman's haemoglobin at 13.45 when invited in cross-examination to consider the total of her drain losses and the theatre blood loss as recorded at that time.

[29] Dr Cullen had visited Mrs Wightman on the evening of her admission on the day before her surgery and had formed the opinion that Mrs Wightman was extremely anxious. Despite being prescribed Temazepam as a pre-med, when she arrived in theatre on the morning of 22 March at 08.30 her heart rate was 115 bpm. Throughout the operation Dr Cullen considered that Mrs Wightman's heart rate remained more elevated than would have been expected in response to the various drugs which she was receiving. It is not clear whether Dr Cullen was aware of Mrs Wightman's admission blood pressure of 135/85 and heart rate of 85 bpm. She took as a starting point for monitoring Mrs Wightman's heart rate the reading of 106bpm taken by an ECG which she said would have been taken on her admission and which she identified as forming page 20 of Crown Production 3 which is Mrs Wightman's medical notes. That ECG printout is undated. Dr Greystoke identified that same document as the printout of an ECG which he had taken from Mrs Wightman very much later in the day when she was seen to be gravely ill. The position as to when that ECG was carried out is therefore unclear.

[30] Dr Cullen considered Mrs Wightman to be one of a group of patients which she had observed over the years who are exceptionally anxious about their surgical procedure to the extent that their heart rate is elevated and remains elevated throughout the procedure and thereafter for up to a further 24 hours. That being so, she was not concerned that Mrs Wightman's heart rate remained above 100 bpm whilst in recovery and was content for the recovery nurses to return Mrs Wightman to Ward 6. Thereafter Dr Cullen reviewed Mrs Wightman again on the ward at around 16.30. She considered that Mrs Wightman looked exceptionally well. She was sitting

up and was drinking tea and eating toast and was very chatty. Dr Cullen looked at the SEWS chart and the entries for 14.00, 14.30, 15.00 and 16.05 and was not concerned that Mrs Wightman's heart rate continued to be over 100bpm or that her blood pressure was lower than it had been on admission. In relation to the heart rate, it remained Dr Cullen's opinion that this was caused by Mrs Wightman's elevated anxiety. In relation to her blood pressure, which was considerably lower than upon admission, Dr Cullen did not consider that it was unusual for a patient who had undergone a lengthy operation under anaesthesia. She did not consider that as at 16.05 the observations which were recorded on the SEWS chart indicated that Mrs Wightman showed signs of lack of circulating volume. She considered that she was well perfused when she saw her at around 16.30.

[31] In her evidence, Miss Krupa considered that the drain volumes as recorded in the drain chart as at 16.30 and 17.30 of 870mls and 970mls respectively were very significant and alarmingly high even for a person of normal size, Mrs Wightman being very small. With such volumes she said that she would recognise that there was bleeding and take the person back to theatre. In Mrs Wightman's case she did not see the drain chart amongst her records when she reviewed her at around 16.00 but she did examine the drains which she said were not high. She said that one drain had 165mls and that was about four times as much as was in the other drains. Miss Krupa was concerned with the condition of the flap, which she described as borderline, and considered that giving more fluid to Mrs Wightman would not hurt. She altered the prescription to speed up the rate of administering the fluid.

[32] On being asked at the time of giving evidence to consider Mrs Wightman's observations as a whole at the time of her review, including the drain volumes which she saw (as opposed to what is recorded in the drain chart at 15.30 and 16.30), Dr Krupa agreed that they could have indicated that Mrs Wightman was bleeding when she saw her at 16.00. With the gift of hindsight she considered that Mrs Wightman began bleeding at some time during the afternoon of 22nd March.

[33] Dr Frame shared Dr Cullen's view that Mrs Wightman's heart rate remaining above 100 bpm and her blood pressure remaining around and, at one point, below 100 systolic from 14.00 up to 16.05 as recorded in the SEWS chart were not necessarily indicative that Mrs Wightman might have been bleeding. However, when he considered the drain volumes said to have been recorded at 17.30 taken with the blood lost in theatre, meaning that Mrs Wightman had lost 1305mls of blood and fluid since her operation, it was his view that it was indicative that she was bleeding and required further investigation.

[34] Mr Dixon said that bleeding in patients happens not infrequently. The drains are very specific in their location in the patient. Drain 1 is the front lower drain; drain 2 is under the armpit, drain 3 is usually lower down the back and drain 4 is at the top of the back. The big advantage of having a consistent system is that when patients do bleed it normally goes into one drain so that it can be known which bit of the patient is bleeding. He said that if for instance there was a lot of blood in drain 3 you would realise that that was a back drain and if the patient were taken back to theatre there would be no need to open up the front of the patient. He said that this arrangement of the drains was common practice and is set out on a placard in the recovery area. He was not sure if the ward nursing staff knew about where the drains were situated but

all the nursing recovery and theatre staff did. He considered that it was more important for the medical staff to know rather than the nursing staff.

[35] Mr Dixon said that the important thing to know about drains 3 and 4 is that they are inserted during the operation at the conclusion of the surgical procedure on the back. The surgeons did not stop any more bleeding on the back after they had closed it and turned Mrs Wightman over to perform the reconstruction. The amounts of fluid that were in drains 3 and 4 at the end of the operation would be the amounts that would drain during the time that he and Miss Krupa were reconstructing the breast on the front of the body. As drains 3 and 4 are draining over a longer period than the front drains he would expect a little more fluid in them. That was the case with Mrs Wightman as noted on the drain chart whilst she was in the recovery room. He considered that the level in drains 3 and 4 over that period of 60mls and 120mls was not very much fluid and in his opinion he could be fairly definitive that Mrs Wightman was not left bleeding at the time of surgery. If she had been, the blood would come out in the drain. It would have been a significant amount and it would be seen at the time.

[36] Whilst Mr Dixon had said at one point in his evidence that he would be concerned that a patient was bleeding if he saw 400/500mls in a particular drain, in the case of Mrs Wightman he considered that, as she was a small woman, at 330/430mls there was a fair amount of blood there as there was recorded in drain 3 from 16.30 onwards. There would not be just blood in the drains. There would be serous fluid and as the anaesthetist gives the patient a lot of saline during surgery the blood is diluted. However, from 17.30 to 19.30 in drain 3 there was drainage recorded

of 80mls over one hour followed by 60mls in the next hour. When there is 140mls of drainage over two hours in his opinion it is quite clear that there is continual bleeding. If he had been called to review Mrs Wightman at 18.30 with the amount recorded in her drains at that time he said that he might have held on until 19.30 but when he had seen another 60mls of drainage recorded he would firstly have checked her haemoglobin to make sure that she had some blood available and would have set her up for theatre. He said that there would be a concern about clotting at this point as Mrs Wightman was a small woman who had lost a lot of blood. He would consider checking her clotting ability at that time as it was relatively unusual for people to bleed this much into drains. The majority of people who bleed form clots and they have haematomas which are much more obvious. A 200ml haematoma in Mrs Wightman would have been large and somebody would have noticed it much sooner than it was noticed that she was bleeding out. Taking into account the continual flow into the drains alongside Mrs Wightman's blood pressure and pulse around the time of 18.30 and 19.30 Mr Dixon said that if someone had called someone of seniority around that time to review Mrs Wightman there might have been a different outcome. Mr Nades expressed the view in his evidence that the recorded drain losses at those times taken together with the theatre blood loss would be concerning. Elizabeth McLatchie agreed that the drain volumes by 19.30 certainly indicated that Mrs Wightman was bleeding and action should have been taken to investigate that.

[37] Mr Dixon said that the breast unit had had many patients previously who had bled, none of whom had died. His view of the appropriate action to take when bleeding is suspected coincided with that of Professor Thomson. It would have been to check the haemoglobin, have some blood cross matched because of concern about

Mrs Wightman's oxygen carrying capacity, check her clotting, return to theatre, find out what was bleeding and stop it. He said that there had been 37 returns to theatre in the year of Mrs Wightman's death. The action which he considered would have been appropriate in her case was what had been done in those other cases with successful outcomes.

[38] Since Mrs Wightman's death Dr Cullen had been instrumental in re-designing the drain chart used in Ward 6 as well as a recovery *pro forma*. The new form of drain chart was to be completed with what the particular patient's circulating blood volume should be as calculated by the anaesthetist at each operation and with the theatre blood loss. In its original format it directed that when a patient was seen to have lost the equivalent of 10% of their calculated circulating blood volume it should trigger the nurse caring for that patient to contact medical staff to discuss the patient's condition. In current practice the trigger has changed to when a patient is seen to have total theatre loss and drain volumes equivalent to 20% of their calculated circulating blood volume. This change in practice resulted from the fact that some patients have already lost 10% by the time they leave recovery but are considered to be stable.

[39] In the case of Mrs Wightman 10% and 20% of her blood circulating volume would have been 360mls and 720mls respectively. According to what is written on the drain chart at 13.45, taking account of her theatre blood loss and the drain volumes, she had lost 565mls of blood and fluid; at 14.30 855mls had been lost; at 15.30 1045mls had been lost; at 16.30 1205mls had been lost; at 17.30, 1305mls had been lost; at 18.30, 1415mls had been lost. Therefore by 13.45 it is recorded that Mrs Wightman had lost more than 10% of her circulating blood volume including

theatre blood loss. From 14.30 onwards it is recorded that she had lost more than 20% of her circulating blood volume including theatre blood loss with the drains and a further dip in her blood pressure is noted.

[40] At 14.00 there is recorded on the SEWS chart a marked drop in blood pressure and a steep rise in heart rate. Thereafter, whilst Mrs Wightman's blood pressure is recorded as having risen slightly between 14.30 and 16.05, the pattern of her blood pressure remained consistently low and had dropped to below 100 systolic by 19.00 never rising above that level again. Her heart rate was consistently over 100 bpm from 14.00. Of the very few complications which do rise after surgery such as Mrs Wightman had, post-operative bleeding is the most common. It was accepted by all the medical and nursing witnesses that high heart rate and low blood pressure coupled with lack of urinary output are indicative of loss of circulating blood volume which in turn is an indication of bleeding. That being so, I accept Professor Thompson's opinion that, whilst there may have been other clinical explanations for her heightened heart rate, lowered blood pressure and large drain volumes, the potential cause of blood loss should and could have been recognised, investigated and eliminated in the first instance whilst Mrs Wightman remained in recovery and from 14.00 onwards.

[41] To investigate if bleeding was occurring by taking a full blood count to check the haemoglobin catheterisation to check urine output involves standard procedures. They would provide indicators of loss of circulating blood volume if that were occurring. Mrs Wightman could have been resuscitated with fluids pending the results of the full blood count.

[42] Miss Krupa gave evidence that transfusion guidelines suggest that once a patient's haemoglobin was below 80 grams per litre of blood transfusion with blood is appropriate. Mrs Wightman's haemoglobin was 141grams per litre on 23rd February 2006. By 23.45 on 22 March it was 17 grams. It was Professor Thompson's opinion that the volumes in the drains as recorded together with the theatre blood loss made it likely that a full blood count would have indicated that blood loss was occurring and that transfusion may have been required whilst Mrs Wightman remained in recovery and from 14.00 onwards and was certainly required as the day progressed. He considered that had there been a full blood count taken at 21.00 when Mrs Wightman was reviewed by Dr Mitchell it is likely that it would have revealed that her haemoglobin was low and that she needed transfusion. Dr Mitchell agreed, with the gift of hindsight and the information which she has since acquired, that that was likely to have been the case.

[43] Neither Dr Cullen nor Mr Dixon were considering the whole observations of Mrs Wightman when they reviewed her on Ward 6. Dr Cullen did not examine Mrs Wightman's drains and it was not part of her professional responsibility to do so. It was her evidence, which was supported by Dr Scott, that even during surgery it is the surgeons who monitor the drains although if she observed what she considered to be concerning volumes she would draw it to a surgeon's attention. There was also evidence, confirmed by Professor Thompson, Dr Frame and Mr Dixon, that once a patient is returned to the ward after recovery her care is the responsibility of the medical and nursing staff on the ward. During his reviews, Mr Dixon was concerned with the viability of the flap and was not checking the drains or the SEWS chart. Miss

Krupa had reported to him the observations which she had seen when she reviewed Mrs Wightman as around 16.00 but she too was focussed on the viability of the flap.

[44] I have been careful to refer to the drain volumes “as recorded” on the drain chart. I consider that there is reason to question the entries made on that chart by Claire Smith.

[45] It was her evidence that, as she could not find Mrs Wightman’s drain chart during the afternoon when she was caring for her, she had written down the drain volumes at the times when she observed them on a separate piece of paper. Later, when the drain chart had re-appeared at a time and in circumstances which were not clear, she had copied in the entries from the piece of paper. She destroyed the original separate note. She admitted making an entry on the drain chart which she thereafter completely obliterated. She could not remember what it was or why she scored it out. It was the evidence of every nursing witness, and it was agreed by Claire Smith, that correct nursing practice dictates that if an entry in any record requires to be altered it should be scored through by a line in such a way that the original entry remains legible. If information is copied into a record from a separate original document that latter document should be retained and kept with the record.

[46] The accuracy of the entries in the drain chart made by Claire Smith is questionable for the following reasons:-

Firstly, the entry recorded as at 15.30 totals 710mls. At around 16.00 Miss Krupa looked at the drains including picking up a bottle and, as referred to above, saw much

lesser volumes. She did not see the drain chart. Miss Krupa could have been mistaken but I consider that unlikely. In her evidence, she agreed that the levels noted in the drain chart at 15.30 and 16.30 were alarming for a woman of Mrs Wightman's size. It is improbable that she would have misread the level when looking directly at the drain bottle and even more improbable that she would see the recorded levels and ignore them. She had spent the morning carrying out highly specialised and complex surgery on Mrs Wightman. She was concerned about its success and the viability of the flap. To ignore the drain levels would be to risk the whole procedure.

[47] Mr Dixon said that with a 500ml drain bottle drainage of 410mls and 490mls as recorded at 17.30 and 18.30 would be very obvious as it would be starting to fill the bottle. He suspected that it was obvious to the visitors later on, as indeed it was to the Wightman family when they arrived in Mrs Wightman's room at 18.45. Mr Dixon questioned whether the volumes as noted in the chart were available to him when he reviewed Mrs Wightman before he left the hospital at 17.30. Miss Krupa had raised her concern with him that the amounts in the chart were not necessarily put in exactly the same as they had been or at the right time. Mr Dixon expressed regret that he had not looked at Mrs Wightman's drains and the drain chart himself when reviewing her before leaving the hospital that evening.

[48] Secondly, Claire Smith admitted that she did not carry out any further observations upon Mrs Wightman after 17.00. That coincides with her having failed to replace as instructed the intravenous fluid bag which she had put in place earlier on Dr Krupa's instructions at 16.10 once it was empty by the time when the family arrived at 18.45. It must be doubtful that she checked the drains at 17.30 and 18.30.

[49] Thirdly, the Wightman family were adamant that whilst they were visiting Mrs Wightman between 18.45 and 20.05 no nurse checked the drains. Mr Wightman and Lisa were sitting beside the drains at the side of Mrs Wightman's bed which was furthest from the door. I accept their evidence as credible and reliable. Claire Smith did not check the drains when she changed the fluid bag before 19.00 nor when she gave Mrs Wightman the anti-emetic injections not long after 19.00. She was not back in the room again whilst the Wightman family remained. The student nurse did not check the drains when she carried out the SEWS chart observations at 19.00.

[50] It is difficult to know therefore how Claire Smith arrived at the entries in the drain chart as at 17.30, 18.30 and 19.30. If they were recorded without actual observation at the time when said to be observed their accuracy must be in doubt. If Miss Krupa's evidence of the levels at 16.00 is correct, the entry recorded as at 15.30 must also be inaccurate and possibly the 14.30 entry too. What can be known is that by 18.45 when the Wightman family arrived to visit Mrs Wightman the drain levels as described by Mr Wightman were similar to those said to be recorded at 19.30 and by Gillian Edgar at 20.30.

[51] The potential inaccuracy of the drain chart entries is of some significance. If Miss Krupa is correct in what she saw at 16.00 there would have been in the region of 300/350mls in the drains. By the time the family arrived there was around 1200mls (from what they saw and what was noted at 20.30 by Gillian Edgar) meaning that there had been an extensive bleed during the intervening period which would have been at a rate per hour that would have been of concern to Mr Dixon, as referred to

above. It would have been clearly an ongoing bleed. This was confirmed by Professor Thompson in his evidence.

[52] Gillian Edgar said in her evidence that she drew reassurance from the recorded slowing down of drain loss as recorded in the drain chart. Whilst, following the evidence of Mr Dixon, Miss Krupa, Dr Frame, Professor Thompson and Elizabeth McLatchie, the levels at 20.30 ought in themselves to have been considered to be alarming by her irrespective of the rate at which they had accumulated, Gillian Edgar passed that reassurance on to Dr Mitchell who had no knowledge, experience or training in relation to breast surgery procedures or acceptable drainage levels. Because of that, Dr Mitchell chose to rely upon the assurance from Gillian Edgar, whom she recognised as being an experienced nurse because of the colour of the epaulets on her uniform, that the volumes in Mrs Wightman's drains were not unusual. For a woman of Mrs Wightman's size that was incorrect.

[53] The reassurance gained from the decreasing rate of drain loss would have been false if there was in fact a rapid increase in the drain losses after Dr Krupa saw Mrs Wightman. It was a contributing factor to both Gillian Edgar and Dr Mitchell failing to recognise that the volumes which were present in the drains when they saw them were very serious and that intervention was required at that stage from more senior members of the nursing and medical staff. Gillian Edgar for her part was reassured by Dr Mitchell reviewing Mrs Wightman. It can be seen with the gift of hindsight that their mutual reassurance was misplaced. As discussed, the appropriate intervention at any stage once it was recognised that blood loss was or could be occurring would have been to take a full blood count, catheterise to establish urine

output, transfuse in the first place with fluid whilst awaiting the result of the blood count and thereafter transfuse with blood and blood products to stabilise Mrs Wightman so that she could be returned to theatre where the source of the bleeding could be investigated and, once discovered, eliminated. It was likely that Mrs Wightman's blood haemoglobin would have been shown to be low at that point and her urine output would have been shown to be nil, indicating blood loss.

[54] As it was, Dr Mitchell correctly diagnosed hypovolaemia and correctly prescribed 500mls of gelofusion fluid to be administered at once in order to try and increase Mrs Wightman's circulating volume and left matters with Gillian Edgar that she should contact her again if there was no improvement once that fluid was transfused which would be in 20 to 30 minutes time. I accept and prefer Dr Mitchell's evidence on this point to Gillian Edgar's evidence that Dr Mitchell left matters by telling her to give it a couple of hours and then let someone know if there was a deterioration. That was, as is now known, what Gillian Edgar did in fact. Dr Mitchell had also prescribed prochlerperaline as an anti-emetic as Mrs Wightman was complaining of nausea which is another symptom of blood loss. If Mrs Wightman's condition did improve after the gelofusion was transfused Dr Mitchell instructed Gillian Edgar to transfuse more fluids and wrote further prescriptions for gelofusion and saline to allow that to be done. These steps were appropriate but were not adequate to treat the condition in which Mrs Wightman was by then but which was not recognised.

[55] In retrospect Dr Mitchell said that she now knows that Mrs Wightman had an ongoing haemorrhage when she saw her. The normal practice on Ward 6 at that time

was to routinely take a full blood count for breast surgery patients on the morning after the day of surgery. Dr Mitchell believed that if a full blood count had been taken at the time when she saw Mrs Wightman it would have shown that she was anaemic as her total blood loss including theatre loss was approaching half her circulating blood volume. Gillian Edgar said that she told Dr Mitchell that she would arrange for a full blood count to be accelerated to that evening for Mrs Wightman. In his evidence, James Wallace said that had he been asked to do a full blood count at 21.30 it could have been available within 15 minutes of a blood sample being taken and sent to the lab. It was Dr Mitchell's evidence that she did not instruct a full blood count and Gillian Edgar did not offer to take one. In any event Gillian Edgar did not take a full blood count. She did not give Mrs Wightman any more fluid after the first prescription of gelofusion which would have been transfused within 20 to 30 minutes. She did not give the anti-emetic prescribed by Dr Mitchell. Instead she gave her an injection of cyclisine which Mrs Wightman had also been given earlier that evening by Claire Smith. This was potentially an overdose of that drug at that time.

[56] Mrs Wightman was found to be in a non-responsive condition by Gillian Edgar at around 22.45. She said that at 22.30 Mrs Wightman had been alert, had been chatty with her and had had a drink of water. Both Professor Thompson and Elizabeth McLatchie considered that that was unlikely given Mrs Wightman's blood loss by then, her continuing tachycardia and hypovolaemia, her dropping temperature and respiration rate and the condition that she was in at 22.45. The water said to be drunk by Mrs Wightman was not recorded on the fluid balance chart. I do not accept Gillian Edgar's evidence on Mrs Wightman's condition at 22.30.

[57] When Gillian Edgar arranged for the assistance of the HAN team to be summoned, Dr Foley and, shortly thereafter, Dr Greystoke responded swiftly to the call. Whilst they both considered that Mrs Wightman might have been haemorrhaging they considered that it was appropriate to eliminate other possible causes for her condition - pulmonary embolism, pneumothorax and cardiac arrest - in the first instance. This was because intervening by transfusion of blood would have been harmful if Mrs Wightman was suffering from these other conditions.

[58] Neither Dr Foley nor Dr Greystoke had much previous experience with post operative breast surgery patients. Dr Greystoke had last seen such a patient when he was a junior house officer. They had never had any experience of a patient who had had the extensive type of breast surgery which Mrs Wightman had had. When Fiona Taylor attended approximately an hour later in response to the arrest call it was her impression that both Dr Foley and Dr Greystoke were unsure what they were dealing with in Mrs Wightman. That lack of experience led to their failure to immediately diagnose that a haemorrhage was in fact happening. It led to a considerable delay in the commencement of blood transfusion.

[59] It was confirmed by Mr Neades that the other conditions which Drs Foley and Greystoke sought to eliminate from their consideration could possibly have been the cause of Mrs Wightman's state. He also confirmed that to intervene with blood transfusion in these other conditions would be dangerous. However, it was Professor Thompson's opinion that, blood loss being the most common complication of breast surgery, there having been drain loss equivalent to over half of Mrs Wightman's circulating volume, there having been no recorded urine output, and Mrs Wightman

having been tachycardic and hypovolaemic since being in recovery, it should have assumed in the first instance that she was haemorrhaging until that was excluded by investigation rather than the reverse action of trying to exclude other possibilities first. In all the circumstances I consider that Professor Thompson's view is to be preferred on this point. In his evidence Mr Neades said that if blood loss is identified it is easiest to replace the blood and not to look for alternative explanations. It would have been reasonable to diagnose that Mrs Wightman was suffering from a haemorrhage at this point and urgent action taken.

[60] Both Dr Foley and Dr Greystoke said that they took blood samples for the clinical biochemical lab and for the haematology lab to check Mrs Wightman's blood gases and haemoglobin levels but there appeared to have been a failure to have the haemoglobin checked as a matter of urgency. The biochemical lab received samples for blood gas analysis at 23.32 and 23.52 but the haematology lab did not receive a sample for a full blood count until 23.52. James Wallace said that he carried out the analysis in five minutes and phoned the ward with the result. By that time Mrs Wightman's blood count was so low that James Wallace queried the integrity of the sample. There was no explanation in the evidence as to why it took so long to send the sample to the lab for analysis. Similarly, whilst Dr Foley requested four units of cross matched blood from the blood bank it appears that he did not impart any sense of urgency in the request. James Wallace said that the normal procedure for requesting blood from the bank is that a nurse telephones the bank first of all to check on availability of blood and this is followed up with a request from a doctor. He said that a nurse had phoned him that evening at around 22.30 and asked him if there was cross matched blood available for Mrs Wightman He had told her that there was not and

that the lab only had one group and save blood sample from Mrs Wightman which had been taken from her on her admission. This had not been explored in the evidence of Gillian Edgar who gave evidence before Mr Wallace in the inquiry.

[61] With one group and save sample it took the lab at the time of Mrs Wightman's death 40 minutes to produce cross matched blood which is blood that matches the patient's own blood group and which has been screened for harmful antibodies. If there were two group and save samples from the patient available, for technical reasons, it was possible for the lab at that time to produce cross matched blood within 15 minutes. For some surgical procedures a group and save sample was also taken from the patient at their pre-surgical assessment in addition to upon admission so that two samples would be available. That procedure was not followed by the Breast Unit.

[62] Mr Wallace said that it was between 23.00 and 23.30 that he was telephoned by Dr Foley and asked for four units of cross matched blood for Mrs Wightman. He had told Dr Foley that it would take 40 minutes to produce that and told him that it would have been useful to have a second group and save sample without elaborating why. Dr Foley had said nothing about the cross match blood being urgently required at that time. He had called back to the lab 20 to 25 minutes later and asked when the blood would be ready. James Wallace told him that it would take another 15 or 20 minutes and offered O negative blood which he could have provided in 5 or 10 minutes. Whilst it is best for a patient to be given cross matched blood of their own group O negative blood can be given to patients of any blood group without the necessity of cross matching and without causing harm. It is used as a stop gap until cross matched blood can be made available. Dr Foley declined the offer of O negative

blood and said that he would wait for the cross matched blood which he had requested. James Wallace said that this again suggested to him that the request was not urgent. The urgent requirement for blood for Mrs Wightman first became apparent to him when the Major Haemorrhage Protocol was invoked after midnight. This had been invoked at the request of Dr Savaridas. When he arrived he considered that Mrs Wightman was too ill to wait for cross-matched blood. The first blood for Mrs Wightman was delivered to the ward at approximately 00.27, one to one and a half hours after Dr Foley and Dr Greystoke arrived on the ward. By that time the arrest call had also been made. O negative blood would have been available to be supplied within 5 or 10 minutes at any time and could have been transfused into Mrs Wightman very soon after the arrival of the HAN team pending cross matched blood being prepared.

[63] Dr Foley and Dr Greystoke both recognised that Mrs Wightman was gravely ill as soon as they attended. Dr Foley called for Dr Greystoke's assistance. Dr Greystoke in turn telephoned for assistance and advice from the consultant breast surgeon who was on call, Mr Neades. There was a conflict in their respective testimony as to the content of that telephone call.

[64] Gillian Edgar gave evidence that it was she who had initially made the call to Mr Neades at his home. She had told Mr Neades that there was a crisis situation with Mrs Wightman before passing the telephone to Dr Greystoke. Dr Greystoke said that he told Mr Neades that Mrs Wightman was gravely ill. He read out her heart rate, and systolic blood pressure from the SEWS chart and drain volumes totalling 1300mls as recorded at 23.00 in the drain chart. Gillian Edgar held up the charts before him as he

spoke on the phone with Mr Neades. Sarah McDonald confirmed that this was done in her evidence. Whilst Dr Greystoke would have liked Mr Neades to come in to the Hospital Mr Neades did not offer to do so and Dr Greystoke did not request him to do so. Mr Neades diagnosed hypovolaemia and instructed further fluid resuscitation.

[65] Mr Neades said that he had been in bed asleep when the call was made. He said that Dr Greystoke had told him that Mrs Wightman's pulse was in the region of 100bpm and that there had been some fluctuation in her blood pressure in which there had been a small drop. Mr Neades said that he had asked about the level of the drains and was given the individual level of each drain. He thought that the largest amount in any drain was 300mls. When he had added up the total in the drains it came to about 600/700mls. On his assessment of what he had been told there was no excessive drainage which would have been the source of the blood pressure and heart rate readings. He agreed that 1300mls was a significant blood loss. He had not asked what the theatre blood loss was as it was not then current practice to do so. Whilst it had long been known that weight correlates with circulating blood volume it had not been routine surgical practice to consider a patient's weight up to that point. That practice has since changed. He had asked to have the wounds checked for any accumulation of blood. Dr Greystoke had told him that Mrs Wightman was confused and disorientated but Mr Neades did not recall him saying that she was very ill. He said that if he had been aware of more blood loss in combination with Mrs Wightman's weight he would have initiated different resuscitation measures at that time. He said that would have taken him 45 minutes to have gone in to the Hospital, allowing for washing, dressing and the journey from his home.

[66] It has been difficult to arrive at where the truth lies in what Dr Greystoke told Mr Neades in this first telephone call. Whilst I have accepted Dr Greystoke's evidence that he read out Mrs Wightman's heart rate, blood pressure and drain volumes from the charts held up before him by Gillian Edgar, as confirmed by her and Sarah McDonald, and it may be improbable that he would have relayed them inaccurately without being corrected, the evidence of Dr Savaridas was that he was told later that Mrs Wightman had 700mls of blood in her drain when contacted by the HAN team and found 2.3 litres in the drains when he attended minutes later. It raises a doubt about the clarity of communication coming from the HAN team at that time. It is recorded on the SEWS chart at 23.00 that Mrs Wightman's heart rate was 120bpm dropping suddenly to 65bpm. It was not around 100bpm by the time of the phone call. The blood pressure had been consistently under 100 since 19.00 and had fallen to 77 by 23.00 – not a small drop. It was not put to Mr Neades that Gillian Edgar had told him that there was a crisis situation with Mrs Wightman and he made no mention of her speaking to him.

[67] Mr Neades said that he had been asleep when the first call was made. It may have been the case that he was not fully alert during that call and misheard what was said to him. However, that is unlikely to have been so when Dr Greystoke made the second call at around 23.40 as Mr Neades said that he had remained awake in his home awaiting feedback on Mrs Wightman's condition. Mr Neades recalled this second call in his evidence but it was not mentioned by him in the Sudden Death Report which he prepared dated 24th March 2006 (Crown production 39). Dr Greystoke gave evidence that in this second call he told Mr Neades the blood gas results, that Mrs Wightman was deteriorating, that she had developed a haematoma on

her back and that her reconstructed breast was swollen. If that is so, Mr Neades ought to have realised that Mrs Wightman was gravely unwell and that the appearance of a haematoma indicated that she was bleeding. Mr Neades was vague in his evidence on the contents of this second call. He still did not suggest haemorrhage as the diagnosis to Mr Greystoke or that Mrs Wightman urgently required blood. He did not suggest invoking the major haemorrhage protocol which would have speedily provided blood and blood products but instead instructed the continuation of fluid resuscitation.

[68] After that phone call Mr Wallace had carried out the full blood count and had telephoned the ward with the result as discussed. Dr Greystoke then sought assistance from Dr Savaridas. Dr Savaridas was contacted shortly before midnight by the HAN team through the beep system and was asked to see someone in the breast ward with 700mls of blood in her drain. He said in his evidence that that meant to him that he needed to go straight away. When Dr Savaridas arrived not long after that call he noted 2.25 litres of mostly dark fresh blood in the drains. He said that he would have expected the amount of blood loss that he saw to have been noted earlier and to have been called earlier. The fresh or frank blood is dark in colour and different from inflammatory accident blood, referred to as serous fluid by other witnesses. He said that the type of surgery which Mrs Wightman had was not a procedure with a lot of wash on the operation site which would be entering the drains. Mrs Wightman was hypotensive, tachycardic and on the Glasgow coma scale scored 5. With such a low coma scale Mrs Wightman would not be able to maintain her own airway and Dr Savaridas asked for the anaesthetic registrar, Dr Scott, to be contacted.

[69] Looking at the amount of blood in the drains, Dr Savaridas diagnosed without delay that Mrs Wightman was in haemorrhagic shock due to loss of blood and needed resuscitation with blood and blood products. He asked a nurse to make a call to implement the major haemorrhage protocol. Dr Greystoke said in his evidence that he had called the protocol. It may have been something that occurred to both doctors simultaneously. Dr Savaridas considered that the next thing to do was to telephone Mr Nades because he needed him to be aware of Mrs Wightman who was unwell and who could potentially need to be taken back to theatre to stop the bleeding. The next urgent thing to do was to ensure that she could be taken back to theatre if required. Dr Savaridas said that he made it clear to Mr Nades that Mrs Wightman had a large amount of medical drains and was extremely unwell. He told him that he had instigated the major haemorrhage protocol and that she was an impending cardiac arrest. Mr Nades told him that he had done everything he should be doing and that the aim should be to take Mrs Wightman back to theatre if she could be resuscitated. He asked to be kept informed of events as they unfolded.

[70] When Dr Savaridas arrived back in the room where Mrs Wightman was she had arrested. Blood arrived at about this time. The anaesthetist was co-ordinating the transfusion. Dr Savaridas left the room again to telephone Mr Nades and tell him that she was a cardiac arrest. Mr Nades had said in this and the previous call that Mrs Wightman would have to be stabilised before she could be taken back to surgery. Dr Savaridas considered that successful resuscitation was highly unlikely at the time of either call to Mr Nades though there was a low possibility that it might be. Whilst Mrs Wightman remained in arrest, he said that as a surgeon he did not think that there was an operation which Mr Nades could perform. Once blood and blood products

were being transfused Mrs Wightman continued to lose blood. In the opinion of Dr Savaridas the products in her platelets that helped clotting were fully consumed so that the blood that was going in was coming straight out again. The resuscitation attempt was not producing a response. Eventually it was decided to stop the attempt and Mrs Wightman was pronounced dead at 01.05 on 23rd March.

[71] When considering up to what point in the course of events Mrs Wightman's death might have been prevented if it had been recognised that she was bleeding I have respectfully followed the guidance provided by Sheriff Kearney to which I have already referred. I have directed my mind to lively possibilities of Mrs Wightman being able to survive if appropriate action had been taken at any point rather than considering whether if such action were taken her death would on the probabilities have been avoided.

[72] Upon the evidence of Professor Thompson and Mr Dixon I consider that there were a number of stages when, if appropriate action had been taken, the life of Mrs Wightman could have been saved.

[73] Linking those stages to times when nursing and /or medical staff were considering Mrs Wightman's condition, Professor Thompson considered that whilst Mrs Wightman remained in recovery at 13.30 and 13.45, and on the ward at 14.00, mid to late afternoon, early evening and at 21.00 it could reasonably have been recognised that she may be or actually was bleeding and the appropriate action which has already been referred to could have been taken to save her life. He considered, however, that after 23.00 it would have been very difficult to prevent Mrs Wightman

dying even if appropriate intervention were taken. Professor Thompson's views on this point coincided with the views of Mr Dixon.

[74] Mr Dixon considered that 20.30 was a critical time for Mrs Wightman. By that time he considered that anaesthetists would confirm that she had lost a significant percentage of her circulating blood volume in the drains and at surgery. That would mean that her blood would not have enough oxygen carrying capacity as she had lost a lot of red cells into the drains and Mrs Wightman would be anaemic as confirmed by her nausea. Secondly, she would not have enough fluid circulating which is why she had low blood pressure and a high pulse. If the level of fluid circulating is at a very low critical level and gets too low a person cannot maintain their blood pressure and cannot maintain any oxygen to the brain.

[75] By this time Mr Dixon said that he would have been concerned about Mrs Wightman's ability to clot. A person only has a certain amount of clotting factors circulating in their blood. Once as much blood has been lost by a person as had been lost by Mrs Wightman by 20.30 some of their clotting factors would have been used up by their body in trying to clot and other clotting factors would have bled out into the drains. By the time that a person has lost this much blood they would have virtually no ability to clot. Areas which have been bleeding will continue. Worse still, areas that had stopped bleeding will now start. The patient will virtually bleed from everywhere because they will have lost all their clotting factors which is what happened later with Mrs Wightman. Mr Dixon considered that it was an inevitability from about that time. However, he was sure that at that point it could have been reversed because blood, frozen clotting factors and frozen platelets which help with

clotting are kept in the blood bank for these kind of emergencies. The problems of not enough volume, not enough oxygen carrying capacity and not enough clotting factors can all be reversed. There would need to be a resuscitation period to try and normalise everything and then preparation would be made for another operation to find out where the bleeding is. Mr Dixon said he had done this on many other occasions with other patients who were bleeding in similar circumstances and had always had successful outcomes in these cases.

[76] Looking at the nursing note written in retrospect by Gillian Edgar at pages 63 to 69 of Crown production 3 and the observations of Mrs Wightman noted at 21.00, 21.30 and 22.00, Mr Dixon said that he would have proceeded in the same way as he had said he would at 20.30 and believed that at those times there was still an opportunity to save her life and a very high probability that the medical and surgical team at the Hospital would have been able to do so as Mrs Wightman was relatively stable for a short while then though she certainly did not get any better.

[77] By the time of the noted observation at 22.45 Mrs Wightman was described as showing minimal response to voice. Her blood pressure was concerningly low and she was probably not getting enough blood to her brain. Mr Dixon would have made the same resuscitation attempts as earlier but at a quicker pace as he considered Mrs Wightman to be at a really critical stage. He would have sent someone to the blood bank to collect blood etc immediately as minutes would make a difference at this particular time. Mr Dixon had not come across many patients in as poor a state as Mrs Wightman was by this stage. There was not enough blood going around her system to keep her vital organs alive. He thought that if blood had been gotten into her brain

quickly he might possibly have made a difference especially as she survived quite a bit longer after that but it was much more difficult to be as dogmatic about a successful outcome as he had been in relation to the earlier times. Mrs Wightman was now in a very critical condition.

[78] Considering all the evidence I am of the view that there was a lively possibility that Mrs Wightman would have survived if it had been recognised that she was bleeding post-operatively and appropriate intervention carried out when she was seen by doctors and nurses up until 22.00 on 22 March 2006. It is not possible to say precisely when she began to bleed. Professor Thompson considered that there were signs that she might be bleeding whilst she was in the recovery unit and Mr Neades thought that the levels in the drains there at 13.30 and 13.45 merited taking a full blood count. On balance I consider that there were certainly signs that she may have been bleeding from 13.45 onwards which could reasonably have been recognised by the medical and nursing staff attending to Mrs Wightman if they had considered all her parameters. By the time that Dr Foley and Dr Greystoke were called to see her at 23.00 and thereafter, it would have been difficult to prevent her death. The period that was allowed to elapse between Dr Mitchell's review of Mrs Wightman and the summoning of the HAN team was therefore crucial.

[79] That being said, it was the opinion of Professor Thompson that blood should have been given immediately when Drs Foley and Greystoke attended at around 23.00. That was also Mr Dixon's view of the appropriate action at that stage. While they were waiting for fully cross matched blood 'O' Negative blood should have been given to Mrs Wightman. The major haemorrhage protocol should have been called at

that time. Mr Neades, in his discussion with Dr Greystoke in the first telephone call, was right to say that at that time that Mrs Wightman was hypovolaemic but he could also have recognised that she was potentially in haemorrhagic shock. In the opinion of Professor Thompson it would have been good practice by Mr Neades to have attended at the Hospital when called by Dr Greystoke in order to manage the resuscitation attempts. It may have been the case that in fact that Mr Neades' presence there would not have made any difference to Mrs Wightman's outcome but it would have been important that a consultant did attend so that someone with a senior background and experience was present to co-ordinate and direct the resuscitation. It was not clear who was in overall charge from 23.00 onwards because many different people, all at junior level, were correctly trying to make a difference and resuscitate Mrs Wightman. Professor Thompson considered that it was important for junior members of staff in that critical situation to have the direction and support of a consultant and for the consultant to be on site as they are trying to save a patient. He would expect that would happen with either a consultant being already on site or requiring to come in. In his view it is helpful in a resuscitation situation to have the most senior person available. A registrar and a senior house officer are by definition junior members of staff. Given that complications arising from breast surgery are rare it ought to have been clear that an unusual situation had arisen which required his expertise to manage. Mr Neades acknowledged in his evidence that looking back he ought to have gone into the Hospital when he received the second call from Dr Greystoke.

[80] I accept on the evidence that Mr Neades could reasonably have recognised from the information which was given to him in the phone calls from Dr Greystoke

that there was a high likelihood that Mrs Wightman was haemorrhaging. Whether he was told by Dr Greystoke that there was 1300mls or 600/700mls of blood in the drains it was in both cases a concerning amount indicative of bleeding. He could have told Dr Greystoke to put the major haemorrhage protocol into action which would have provided blood and blood products quickly. Whilst appreciating that Mr Nades had spent the day carrying out his normal duties and that he would require to do so again the following day, I accept Professor Thompson's evidence that it would have been good practice for Mr Nades to arrange to go into the hospital when first called and spoken to by Dr Greystoke. It ought to have been clear to him that a breast surgery patient was seriously ill within 12 hours of her surgery. This was an unusual event. The medical staff trying to resuscitate Mrs Wightman were inexperienced in breast surgery and needed his expert guidance to manage that. Both Dr Foley and Dr Greystoke were observed to be unsure of what they were dealing with. A considerable time passed before a full blood count sample arrived at the laboratory and before blood was obtained in a situation where every minute counted. If Mr Nades had readied himself at once and travelled to the Hospital in the emergency situation which was described to him, the location of his home in relation to the Hospital and the relatively free movement of traffic at that time of night would suggest that his estimate of taking 45 minutes to get there was probably an overestimate. If he had attended he would have been best able to direct and co-ordinate the efforts of the junior medical and the nursing staff to resuscitate Mrs Wightman so that she would have had the best possible chance of survival.

[81] However, upon the evidence, I cannot determine that if Dr Foley and Dr Greystoke had recognised that Mrs Wightman was haemorrhaging upon being called

to attend to her that there was a lively possibility that her death might have been prevented. Similarly, I cannot determine that if Mr Neades had recognised that she was haemorrhaging when first called by Dr Greystoke and appropriate intervention was quickly set in motion and directed by him on site there was a lively possibility that Mrs Wightman's death might have been prevented. Whilst the evidence was not that there was no possibility at all of her being resuscitated from 23.00 onwards it indicated that Mrs Wightman was by then gravely ill and that it would have been very difficult to successfully resuscitate her. Such possibility of resuscitation as existed was slight. Professor Thompson spoke of there being evidence that a well co-ordinated team effort in which the actors knew what they were doing can produce better outcomes for patients than an uncoordinated effort. Dr Cullen spoke of having come across a patient with a lower blood count than Mrs Wightman was found to have just before midnight who had been successfully resuscitated. Whether Mrs Wightman could in fact have been successfully resuscitated if there was recognition of her condition and appropriate intervention had been put in motion after 23.00 cannot be known.

(ii) if Mrs Wightman had remained in the recovery room until her heart rate had stabilised at less than 100 bpm.

[82] I have referred to Dr Cullen's evidence that she regarded the cause of Mrs Wightman's tachycardia as being her extreme anxiety which in Dr Cullen's experience affects a number of patients and persists through the operative procedure and 24 hours thereafter. I do not doubt that Dr Cullen has observed some patients with tachycardia whom she has assessed as being extremely nervous and has considered that to be the cause for it. Dr Frame confirmed that he had shared that

experience with certain patients. It was Professor Thompson's evidence that all patients about to undergo the type of surgery which Mrs Wightman had in his experience are extremely nervous and this was confirmed by Mr Dixon and Mr Neades. Mr Dixon had seen Mrs Wightman before her surgery and did not consider that she was exceptionally nervous.

[83] Professor Thompson had never heard of the phenomena of there being a special group of extra anxious patients whose heart rate remained raised during and after surgery for that reason as described by Dr Cullen and Dr Frame. It has never appeared or been acknowledged in medical literature. Professor Thompson in the course of his evidence had made enquires with the anaesthetists with whom he works at Ninewells Hospital and advised the court that none of them had come across or heard of this extra anxious group of patients. Dr Frame considered that it was extraordinary that neither Professor Thomson nor his colleague anaesthetists had come across such patients but he did acknowledge that there was no medical literature relating to it.

[84] Looking at the matter objectively it appears to me to be more extraordinary that if such patients are recognised as existing within the medical profession there has been no medical literature of any sort generated by it as was stated by Professor Thompson and acknowledged by Dr Frame. Given that, taken together Mrs Wightman's heart rate, systolic blood pressure, drain volumes and theatre blood loss may have been indicative of haemorrhage whilst she remained in recovery and, as already discussed, blood loss is a known and the most common complication after the surgery which she had, that possibility should have been investigated and eliminated

before she was discharged from recovery. In the opinion of Professor Thompson, whilst Dr Cullen and Dr Frame from the anaesthetic point of view might have been happy with Mrs Wightman's heart rate and blood pressure, from the cardiovascular point of view Mrs Wightman was still a patient with a tachycardia. She was discharged from the recovery area 45 to 60 minutes after extubation. As subsequent events showed when she produced a lot of fluid, became more tachycardic, and more hypotensive she left the recovery room too quickly.

[85] Since Mrs Wightman's death, Dr Cullen has changed her practice in that if a patient is tachycardic with a heart rate of above 100 bpm in recovery she would not discharge that patient to Ward 6 but would send them to the High Dependency Unit where the nurse-to-patient ratio is much lower than that on the ward and the patient can be more closely monitored until it is established that the cause of the elevated heart rate is not bleeding. Dr Cullen acknowledged that whilst it is her view that there are patients whose heart rate is greatly elevated by anxiety it could mask the clue that the heart rate was raised due to bleeding and a patient in that situation requires to be monitored until it is established that they are not in fact bleeding. Dr Cullen also acknowledged that with the gift of hindsight she would have managed Mrs Wightman differently.

[86] In the case of Mrs Wightman on the afternoon of 22 March 2006 it would have been reasonably practical for her to have remained in recovery until her heart rate stabilised below 100 bpm. There was no other patient in recovery that afternoon. It was Dr Cullen's evidence that the procedure on the other lady who underwent a

similar operation as Mrs Wightman was not concluded until around 16.45. The two recovery nurses were on duty and were available to monitor Mrs Wightman closely.

[87] We know now that Mrs Wightman's heart rate never fell below 100bpm until she entered a collapse late on in the day. Her blood pressure remained low throughout the rest of the day. At some point between 17.00 and 19.00 it fell to 90 and never rose above 100 again. I consider that there was more than a lively possibility that had Mrs Wightman remained in recovery under the close observation of the two nurses there and they had observed her continually raised heart rate and the volumes of the drains which, if the drain chart entries are accurate, increased sharply each hour over the afternoon after Mrs Wightman was returned to the ward the recovery nurses would have sought review of Mrs Wightman by Dr Cullen and Mr Dixon. If the drain volumes as recorded are not accurate but were as seen by Miss Krupa at around 16.00 these nurses would have observed the sharp increase in volumes which occurred by 18.45. I consider that there remains more than a lively possibility that in the course of the day the recovery nurses who would have requested review at a stage when it would have been possible to successfully resuscitate Mrs Wightman.

[88] Neither Dr Cullen nor Mr Dixon considered Mrs Wightman's condition as a whole after 14.00 but if one of the benchmarks for her discharge from recovery was that her heart rate was stabilised at below 100 bpm then she would never have been considered fit for discharge. In that case Dr Cullen and Mr Dixon would be bound to be made aware of that and the cause for it is very likely to have been investigated at the latest by the time the drain volumes were at the levels described by Mr Wightman when the family visited at 18.45 and as noted by Gillian Edgar at 20.30. As discussed,

the evidence which I have accepted from Mr Dixon and Professor Thompson was that there was every possibility of successful intervention at that stage.

(iii) if upon discharge from the recovery room Mr Wightman was transferred to a high dependency unit for a minimum period of 24 hours after her surgery.

[89] It was the evidence of Dr Cullen that at the time of Mrs Wightman's death, patients undergoing surgery at the breast unit were occasionally transferred to the High Dependency Unit ("HDU"). She did not specify in what circumstances. However, subject no doubt to the availability of a bed in the HDU, it was possible for Mrs Wightman to have been transferred there. It would also have been reasonable to do so standing her continually elevated heart rate, her low blood pressure, her drain volumes taken together with the theatre blood loss and the fact that bleeding after breast surgery is the complication which is the most frequent. Subject to the availability of a bed for Mrs Wightman on the day of her surgery, and there was no evidence about that, it would have been a reasonable precaution to take. As already discussed it is a precaution which is now taken when a patient has a heart beat remaining at 100bpm and above in recovery as Mrs Wightman had. Miss Krupa gave evidence that it was her practice in the hospital in which she now works that all patients who have undergone major breast surgery similar to Mrs Wightman go to a HDU for a minimum of 24 hours after recovery.

[90] The number of patients which a nurse has to look after in the HDU would have fewer than on the ward and would have resulted in the lively possibility that the fact that Mrs Wightman was haemorrhaging would have been diagnosed at a stage when

there could have been a successful intervention for the same reasons as I have stated in relation to her remaining in recovery.

(iv) if Mrs Wightman had been catheterised either during the operation or during her aftercare.

[91] Mrs Wightman was ultimately catheterised very late in the evening on 22 March when she was very gravely ill and had reached a point when it was questionable whether anything could have been done to allow her to survive.

[92] Mrs Wightman was not catheterised during surgery. Catheterisation of a patient undergoing lengthy surgery such as Mrs Wightman underwent is a routine practice and preference of many surgeons and anaesthetists. Miss Krupa said in her evidence that it was her preferred practice and is routinely done in the hospital where she is now a consultant. Both Drs Cullen and Frame said that it was their routine and preferred practice. Professor Thompson stated that it was his routine and preferred practice. Catheterisation is not the routine and preferred practice of the consultant specialist breast surgeons in the Hospital Breast Unit.

[93] Catheterisation allows precise monitoring of urine output. The rate per hour of urine production is important information in relation how to the kidneys are functioning as is the quality of the urine in terms of its colour which can be seen in the collection bag of the catheter. Lack of urine production, as already stated, is an indicator that the kidneys are not being adequately perfused with blood which in turn can be an indicator of blood loss. Routine catheterisation is the preferred option of the witnesses mentioned. It is not the preferred option of the consultant breast

surgeons in the Hospital because, whilst they acknowledge the value of catheterisation in accurately monitoring the patient's kidney function, it does carry with it a risk of infection through the catheter. The surgeons are concerned that if the patient contracts an infection in that way it might affect the viability of the flap. It is their clinical judgement, balancing all the relevant factors, that it is better that catheterisation is not carried out routinely during the surgery. It is Professor Thompson's view that the amount of antibiotic in a patient's system post-operatively makes infection highly unlikely.

[94] There is no record of Mrs Wightman having passed any urine after her surgery. I do not accept Claire Smith's anecdotal evidence that she saw people in Mrs Wightman's room with a bed pan and remembered a conversation with them afterwards asking if Mrs Wightman has passed urine and how much. At the time of giving her evidence she did not know who these people were and whether they had measured the amount of urine passed. They had not documented it and nor did she. Despite there being no record of urine output Gillian Edgar appears to have accepted upon verbal information provided to her at handover of the shifts that Mrs Wightman had passed urine.

[95] It was Professor Thompson's belief that it was unlikely that Mrs Wightman's kidneys would have been able to produce urine from a relatively early stage post-operatively during the afternoon. If Mrs Wightman had been catheterised it would have been clear to anyone carrying out observations whether she had in fact produced urine and, if she had, how much over each hourly period and of what quality. Both those factors are important considerations.

[96] If Mrs Wightman was not in fact producing urine whilst in Ward 6 it could have been noticed had she been catheterised at a stage when it would have been possible to take steps to save her life. Lack of urine output would have been another factor to take into account together with the volumes in her drains, her tachycardia and her hypovolemia. Catheterisation makes lack of urine output obvious.

[97] There was some evidence that urine output is recorded on the SEWS chart only if someone is catheterised and therefore if, as Professor Thompson believes, Mrs Wightman was not producing urine during the afternoon by 17.00 if she had been catheterised the lack of urine would have been obvious and would have added three to the SEWS score making a total of six which according to the directions on the SEWS chart should have led to review of Mrs Wightman being sought from the appropriate senior house officer or registrar and senior nurse or nurse practitioner being called. If a doctor were unable to attend within 10 minutes the chart directs that the appropriate registrar or consultant should be called and that consideration should be given to referral of the patient to the Intensive Care Unit or a review of the treatment plan.

[98] Mr Dixon and Miss Krupa were still in the hospital at 17.00. There is a lively possibility that if the lack of urine output had been recorded on the SEWS chart and there was a visibly empty collection bag it might have been seen by Miss Krupa, Dr Cullen and Mr Dixon when they reviewed Mrs Wightman in the course of the day. Miss Krupa looked at the SEWS chart. She looked at the drains. I consider it likely that she would have looked at a catheter bag had one been there. Taking that together with Mrs Wightman's other observations referred to it might have led those

doctors to consider the possibility of haemorrhage and to take the steps discussed to exclude that failing which to intervene at a stage when such intervention would be likely to have been successful.

[99] Whilst Dr Mitchell noted that Mrs Wightman had not produced urine and correctly diagnosed hypovolaemia she did not make the connection at the time that the hypovolaemia might be due to blood loss. However, she was not considering lack of urine output in the context of the SEWS chart which records lack of urine output in a catheterised patient in a red band with the required action flowing from that. She had, in any event, had no training in the SEWS chart at the time of reviewing Mrs Wightman.

[100] Even if it were accepted that Mrs Wightman has passed some urine at around 17.00 as asserted by Claire Smith, more than 3 hours would have passed with no urine output by the time that Gillian Edgar was on duty at 20.30. Had she been catheterised and was not producing urine for a three hour period that fact would have been obvious to Gillian Edgar and she would have been required to record it on the SEWS chart in the red band as discussed. It might have prompted her to seek review of Mrs Wightman from a senior house officer or registrar or senior nurse practitioner as the chart directs in those circumstances at that stage rather than the junior house officer. That might have resulted in an earlier diagnosis of haemorrhage at a stage when successful intervention was likely.

[101] There is no evidence of any sort that Mrs Wightman passed urine after she was said to have done so at around 17.00 by Claire Smith. When she was catheterised

much later in the day by the HAN Team it was found that her kidneys were not producing urine. Recognition of this fact at any time up to 23.00 carried with it the possibility, decreasing as time passed without appropriate intervention, that Mrs Wightman's condition might have been recognised and that her life might have been saved.

[102] It remains the clinical judgement of Mr Dixon and the other consultant surgeons in the Hospital that the risk of infection which is carried by catheterisation outweighs its benefits. Since Mrs Wightman's death, a procedure has been instituted in the Hospital Breast Unit that patients who have not already been catheterised for surgery will routinely be catheterised four hours post-operatively if they have not passed urine by then. For the reasons already stated if that procedure had been in place at the time of Mrs Wightman being in Ward 6 it is possible that her condition would have been picked up by 17.00. If Mrs Wightman had in fact passed urine at that time and failure to pass urine for 4 hours at any stage post operatively had triggered catheterisation she would have been due for catheterisation by 21.00. At that time it is likely that it would have been seen that not only had she not passed urine but she was not producing any.

[103] Whilst commending this new procedure the Procurator Fiscal depute expressed concern that without catheterisation of the patient there is a reliance upon accurate observation and recording by the nursing staff of the fact that urine has not been passed over that 4 hour period rather than there being physical evidence to examine in the catheter bag. On the basis of the evidence which I have heard in this Inquiry relating to observation of Mrs Wightman and recording keeping relating to

her by the nursing staff I can understand that concern. However, I do not feel that it would be appropriate for me to make a formal recommendation that patients at the Hospital who undergo lengthy breast surgery should be routinely catheterised which goes against the clinical judgement of the consultants who carry out that surgery. I would, though, invite the specialist consultant surgeons practising in the Breast Unit at the Hospital to reconsider whether in major and lengthy breast surgery the benefit of catheterisation which provides an accurate and clearly visible early warning of lack of urine production on balance outweighs the risk of infection standing, as Professor Thompson pointed out, that the patient is full of anti-biotic and the risk of infection is minimal.

(v) if a haemocue had been available for use in Ward 6.

[104] A haemocue is a device which enables a patient's blood sample to be tested for its blood count on the spot. There was evidence that staff would require some training to be able to operate the device. Its readings do not produce the same pinpoint accuracy as a full laboratory analysis but they are not greatly variable from the results which would be obtained from such an analysis. Mr Dixon said that its readings are within acceptable limits within which it is possible to tell whether a patient is anaemic or not. Haemocues are used in Intensive Care Units.

[105] If a haemocue had been available on Ward 6 at the time of Mrs Wightman being there it could only have been instrumental in preventing her death if obtaining a blood count was being considered at a time when intervention was likely to be successful. There was no evidence about a blood count being considered before the

HAN team were summoned other than from Gillian Edgar. It was her evidence that she told Dr Mitchell during her review that she would obtain a blood count. Dr Mitchell was clear in her evidence that not only had she herself not requested a blood count but Gillian Edgar did not suggest it. Given that Gillian Edgar made no attempt to obtain a blood count I prefer Dr Mitchell's evidence on that point.

[106] On the hypothesis that it was in Gillian Edgar's mind to do so at the time of Dr Mitchell's review if a haemocue had been available on the ward she would have used the haemocue at that time. She had been trained to use the haemocue since Mrs Wightman's death and has used it. On Professor Thompson's evidence the result at that time would have been likely to reveal that Mrs Wightman's blood count was falling and appropriate intervention could have been made with a likely successful outcome at that stage.

[107] If a haemocue had been available on the ward when Drs Greystoke and Foley arrived at around 23.00 I consider it likely that they would have instructed a nurse to use it to obtain a blood count immediately which would have revealed that Mrs Wightman's blood count was very low indicating severe blood loss as the cause of her hypovolaemia. It would have confirmed their diagnosis of haemorrhage and they would not have spent valuable time trying to eliminate other potential causes. They would have been likely to contact Mr Neades earlier and advise him of the result of the haemocue test. Steps would have been taken right away to stabilise Mrs Wightman with transfusion of blood and blood products with a view to her returning to surgery to have the cause of her bleeding investigated and stopped. Dr Greystoke had used the major haemorrhage protocol two nights before and I consider that once the diagnosis

of haemorrhage was made it is likely that he would have instigated the major haemorrhage protocol at that point.

[108] I have already discussed the evidence of the difficulty of saving Mrs Wightman's life by this stage and it may have been the case that the availability of a haemocue on the ward would not have opened the window of lively possibility at that time. Perhaps the provision of a haemocue would more properly be discussed under the heading of section 6(1)(e). However, I have chosen to discuss it in the context of Mrs Wightman's death being avoided. It was the evidence of Dr Savaridas that by the time that he arrived on Ward 6 just after midnight Mrs Wightman was so ill that there was a low possibility of her life being saved. When pressed, he would not say that there was no possibility. The condition of Mrs Wightman had further deteriorated by that time from her condition when Dr Foley and Dr Greystoke arrived an hour earlier. She was very ill but it might be assumed that she had a higher possibility of being assisted to survive with appropriate intervention at that earlier hour than the low possibility of that happening an hour later.

[109] It would have been reasonable for a haemocue to have been made available in Ward 6 particularly as the most common complication which occurs after breast surgery is bleeding. Shortly after Mrs Wightman's death Mr Dixon said that he personally purchased a haemocue for use on the ward though other evidence suggests that it is only available for use in the recovery unit. I have not made any recommendation that a haemocue should be provided for use on Ward 6 now. There was evidence that a full blood count, which provides more information than a

haemocue reading, can now be produced very quickly once a sample is delivered to the laboratory.

- (vi) if nursing staff caring for Mrs Wightman and out of hours junior medical staff providing medical cover for Ward 6 had been given training and guidance in relation to volumes in drains of patients who had undergone surgery such as Mrs Wightman's and of their relevance to the estimated circulating blood volume of individual patients with reference to their weight.**

[110] The evidence showed that the fact that a person's circulating blood volume is relative to their weight has been known in medicine for a long time. It therefore seemed surprising to me that so many of the nursing and medical witnesses in this inquiry gave evidence that they had not been aware of that fact until after Mrs Wightman's death and that they had not been taught about that in relation to adults during their academic training nor on the wards where they had worked. Alice Whigham said that it had not been something that had been highlighted as an important feature in Ward 6. Gillian Edgar did not know about it at the time nor did Sarah McDonald who carried out her own researches on the topic after Mrs Wightman's death. Lorraine Corrigan said that she would not have been able to work out a patient's circulating blood volume at that time and could not say that she knew it was weight related.

[111] The nurses in Ward 6 had not received any training or guidance on what were or were not sustainable or alternatively dangerous levels of blood loss for

patients. In a surgical ward that must be a matter of concern. Dr Mitchell knew that circulating blood volume was weight related but said that a patient's weight was not something which was routinely checked by doctors when reviewing patients. Mr Neades confirmed that that was the case at the time of Mrs Wightman's death but that following her death the practice in the Breast Unit had changed to take a patient's weight into account in review. Dr Greystoke said that at university he had been taught about the significance of weight in relation to paediatric resuscitation but not in relation to adult resuscitation. The significance of an adult patient's weight in relation to blood loss had never been discussed with him by other colleagues including more senior doctors. He had not become aware of it until after Mrs Wightman's death. Neither Dr Mitchell nor Dr Greystoke had had any training or guidance on drainage levels in breast surgery patients - such as when they should cause concern, when they should trigger investigation and when they would be of themselves indicative of haemorrhage.

[112] That lack of knowledge meant that the nurses who cared for Mrs Wightman after her operation and the junior out of hours doctors who were called to review her did not relate the losses in the drains to Mrs Wightman's circulating blood volume. They failed to realise what proportion of that volume she had lost at various stages in the day and how significant they were for her. It meant that as the drain volumes grew there was a failure by nursing staff and doctors to recognise that they had reached levels which were of themselves indicative of haemorrhage in any patient.

[113] It would have been reasonable to provide such training and guidance given that the required information was readily available within the medical profession and post-operative bleeding is the most commonly occurring complication after breast surgery. Dr Cullen gave evidence that there are several ways of calculating a person's circulating blood volume but one way was using 70 to 75 mls per kilo. On that basis she had calculated Mrs Wightman's circulating blood volume as 3600mls. Dr Cullen accepted that another method of calculation would be to use the seven times table to multiply the patient's weight in kilograms and then to add a zero added to the result to arrive at the volume in millilitres. Using that formula the calculation is simple arithmetic and the circulating blood volume of Mrs Wightman would have been 3360mls. To add up the total blood loss at any point and arrive at the calculation of that loss as a percentage of the patient's circulating blood volume is also simple arithmetic. All these simple calculations should be well within the capability of any nurse or doctor. Had the nurses and junior doctors who considered Mrs Wightman's drain losses throughout the day been educated and trained to make such a calculation and had been given guidance on what levels of drain losses should stimulate concern and enquiry as to the cause or were of themselves indicative of haemorrhage, the possibility if not the certainty that she was bleeding is likely to have been recognised much earlier at a time when there might have been successful intervention.

(d) defects in systems of working contributed to the death :

[114] There is some overlap between matters arising under section 6(1)(c) and section 6(1)(d). The absence of training and guidance to nursing and junior medical staff in relation to drain losses discussed previously under section 6(1)(c) is part of a

systemic lack of induction and continuing education for that staff in relation to patients who had had breast surgery in the Hospital at the time of Mrs Wightman's death.

(i) the failure to have an adequate system in the Hospital of induction, education and training for nurses responsible for the care of patients who had had breast surgery and for junior medical staff providing out of hours medical cover for such patients on Ward 6

[115] At the time of Mrs Wightman's death there was no formal induction and no ongoing education and training of nursing staff on Ward 6. Once Mrs Wightman was returned to Ward 6 Claire Smith and Gillian Edgar were the nurses who were directly responsible for her nursing care. They were experienced staff nurses but had barely 6 months experience of working on Ward 6 with breast surgery patients and had little other experience of surgical patients. They received no formal induction or training. They were not made aware of or educated on important protocols. This had an impact of their being able to recognise at an early enough stage when a patient required review by a senior member of the medical staff or when a patient required urgent intervention.

[116] The lack of training and education relating to blood loss and circulating blood volume with its relevance to weight has been discussed.

[117] Claire Smith had previously worked for 6 months on a surgical high dependency unit in a hospital in Australia. She had had no experience of nursing

specifically breast surgery patients prior to joining ward 6 in October 2005. She had received a general orientation on the ward when she started by being shown the layout of the ward and the different types of surgical procedures which took place there. She was not given any formal education on how to look after the patients who had undergone these procedures. She said that there was a lot of discussion about it on the ward and that the system was that she learned as she went along. She said that if a nurse felt that she needed more education in an area she could ask for it but generally a nurse would rely on management to organise courses on whatever they felt was appropriate. No one appeared to be in charge of training on ward 6. She had been told when she started on the ward that if she was concerned about a patient she should call the junior house officer and, if there were other problems, that she should call a consultant. She had been shown various things but had been given no guidance on emergencies. She had not been told of any relevant protocols to follow. There had never been a discussion about what to do in an emergency if a patient was hypotensive, tachycardic and had massive blood loss.

[118] Gillian Edgar had been on leave of absence to care for her mother for six months before returning to work on Ward 6 in October or November 2005. She said that management did not offer training and that it would have been really useful to have training as nurses from all backgrounds, including non-surgical, came to work in the surgical area. She felt that because the breast surgery unit was part of oncology in the Hospital the fact that the type of procedures carried out there were major surgery was lost sight of.

[119] Sarah McDonald said that when she had started to work in ward 6 in February 2006 she had found an orientation pack to the ward in the nurses' duty room. It gave information about the routine within the ward and some brief information regarding the types of breast surgery that were carried out. There was no induction and no formal supervisory training provided. The only training which she did have during the 6 months that she spent on ward 6 was a breast cancer study day which she attended voluntarily in her own time. She said that when a qualified nurse went on to a new ward there usually was a probationary period and an orientation programme to work through whilst always working with senior staff. Both she and Gillian Edgar said that they had had no training in emergencies.

[120] At the time of Mrs Wightman's death there existed an overnight breast surgical emergency protocol, Crown Production 14. It states:

“The most common out-of-hours problem on the breast surgical ward is haematoma following breast surgery.

This presents with marked swelling of the wound of accompanied by systemic signs of blood loss such as pallor, tachycardia and hypertension.

Management involves initial resuscitations with placement of a large bore venflon, intravenous fluid infusion, measurement of full blood count and cross-matching 2 units of blood.

The case should be discussed at an early stage with the on-call consultant who will usually attend the patient and decide on the need for surgical explanation of the wounds.

Other problems such as myocardial infraction, chest infection and pulmonary embolus should be managed as appropriate and if the patient is unwell the on-call consultant should be informed.”

[121] It was the evidence of Claire Smith, Gillian Edgar, and Sarah McDonald that they had never been shown this protocol and they had never seen it for themselves on Ward 6 prior to Mrs Wightman’s death. They had never received any training or guidance on what procedure to follow if there was an emergency situation. A copy of the protocol was placed in the nurses’ duty room after Mrs Wightman’s death. It was said by Gillian Edgar to be all new to everyone who worked there.

[122] Claire Smith said that had she been aware of this protocol at the time when she was caring for Mrs Wightman and its terms referring to hypotension and tachycardia as symptoms of blood loss and its direction to call the on-call consultant she would have done so. The junior urology house officer was usually the first person to call between 17.00 and 21.00 but she said that she would have no difficulty in calling the consultant.

[123] If Mr Nades had been called by Claire Smith at around 20.00 when she in fact had called Dr Mitchell it is possible that Claire Smith would have successfully communicated Mrs Wightman’s systolic blood pressure, heart rate and drain volumes at that time to Mr Nades. As discussed, Mr Nades’ evidence of what he later understood he had been told about these in the first telephone call by Dr Greystoke was at variance from the evidence of Dr Greystoke and Gillian Edgar. When considering Mrs Wightman’s observations as noted during his evidence he said that it

might have been worthwhile to have taken a full blood count from Mrs Wightman at 13.45 as the total of her drain losses by then added to her theatre blood loss amounted to more than 10% of her circulating blood volume. He considered that the drain volumes as noted at 18.30 and 19.30 were concerning. That being so, I consider that had Mr Neades been called by Claire Smith at around 20.00 and had been given Mrs Wightman's observations and drain volumes as noted at that time he would have diagnosed hypovolaemia and prescribed fluid resuscitation, as he did later, and would also have ordered a full blood count which would have revealed that Mrs Wightman was bleeding at a stage when successful intervention was possible.

[114] At the time of Mrs Wightman's death there also existed a Major Haemorrhage Protocol at the Hospital, Crown production 27. It was produced by the NHS Lothian University Hospitals Division and applied to several hospitals. One of its paragraphs did not apply to the Hospital. The protocol was designed to mobilise the resources of the haematology department and the blood bank as a matter of extreme urgency when a patient suffered a major haemorrhage. It was introduced across the Lothian University Hospitals NHS Trust in December 2001.

[125] Gillian Edgar and Sarah Mc Donald had never seen this document before Mrs Wightman's death. It was delivered to ward 6 by Alistair Meldrum within 24 hours thereafter. Gillian Edgar had by chance two years earlier heard of the protocol being invoked but had never received any training on it.

[126] Whilst Claire Smith had attended SEWS training which was run by the Hospital (referred to in Health Board production 3 tab5) when she was working in

ward 3 there in July 2005, Gillian Edgar, Sarah McDonald and Elaine O'Neill had not attended that training. Mr Dixon observed that most of the nurses on Ward 6 were recruited from oncology, as was the case of Claire Smith, and that he would like the nurses on the ward to have had some exposure to surgery or to be provided with specific training in more surgical approaches to ensure that they are able to pick up problems and issues similar to those which had arisen in the case of Mrs Wightman.

[127] Dr Mitchell said that her induction on arrival at the Hospital to take up her junior house doctor post in the Urology department consisted of being told where the fire escape was and what the cardiac arrest bleep number was. She did not receive any induction at all to Ward 6. She was not introduced to the consultants there and was not given any information about the procedures which they carried out. She did not work on that ward during the day and was apprehensive about being its on call out of hours junior house doctor. She assumed that there would be a consultant on call but was never formally told what the on call arrangements were for the Breast Unit.

[128] Dr Mitchell had not been given any training on the SEWS chart at the time of seeing Mrs Wightman. She was not made aware of the overnight breast emergency protocol, Crown production 14. She was not given any induction as to how the HAN team was meant to work or how the junior house doctor on call was meant to work within it. The surgical senior house officer within the HAN team worked independently and the HAN team did not see it as their job to look after surgical patients. She was not told how the cardiac arrest bleep system and HAN team fitted with the on-call consultant. She had heard of the major haemorrhage protocol from a conversation with a doctor who had worked in the Hospital but was not told about it

herself whilst working there. She did not know what exactly it was or how it could be initiated. In her evidence she said that if, as a junior doctor, she had received better induction as to the procedures that were being carried out in the Breast Unit and of expected complications following surgery she would have been better armed to deal with a situation such as she found in the case of Mrs Wightman in a different manner than she did.

[129] Doctor Greystoke said that he had had no induction as to how the HAN team, the junior house officer and the surgical senior house officer fitted together. There was not always a surgical senior house officer on call at night. Neither he nor Doctor Foley received any induction about the procedures which were carried out in the Breast Unit and the complications which can arise from them. Whilst Doctor Greystoke was aware that there was a major haemorrhage protocol that was not because it had been brought to his attention as part of any induction when he took up his post at the Hospital. He was aware of the existence before he took up his post because his wife was a haematologist. He had implemented or had been involved in the implementation of the protocol two nights before he was called to review Mrs Wightman. If he had not been told of its existence by his wife he would not have been aware of it until it was implemented that night. No-one in the Hospital had made him aware of it until then. He had never seen the protocol document, Crown production 27, prior to giving evidence in this inquiry.

[130] From the foregoing it can be seen that there was no adequate system of induction, education and training in the Hospital for nurses joining ward 6 or for junior medical staff who would be required to provide medical cover for Ward 6 out

of hours. I consider that there can be little doubt that the absence of such a system was a major factor in the failure of the nurses who were caring for Mrs Wightman and of the junior medical staff called to review her to recognise and diagnose that she was haemorrhaging which led to her death.

[131] As regards the nursing staff, Lorraine Corrigan gave evidence that she was in charge of recruitment for ward 6. She did not consider that they would require to have previous surgical experience and this was confirmed by Elizabeth McLatchie. All new staff were said to be paired with a more senior member of staff and were given a package which they could read of their own volition. She said that it was her responsibility to draw the nurses' attention to policies and protocols on the ward. She had worked on Ward 6 since 2003. She could not recall if she had drawn the existence of the overnight breast surgical emergencies protocol to the nurses on the ward prior to Mrs Wightman's death. She thought that it may have been placed on the wall of the duty room but was not sure. She believed that the major haemorrhage protocol had always been on the wall. Claire Smith had expressed concern to her about working with post surgical patients after a lapse of time since she had last done so. She was not required to have training. She was not offered nor did she ask for it. She worked with senior staff including Lorraine Corrigan herself. Gillian Edgar had worked as a bank nurse on ward 6 for 4 months before joining the ward permanently at which time she was given no extra training.

[132] The fact was that Claire Smith and Gillian Edgar were not trained nor made aware of two important protocols of particular relevance to breast surgery patients, bleeding being the most common complication; nor were Dr Mitchell and Dr Foley.

Dr Greystoke learned about the major haemorrhage protocol from his wife but had never seen the document in the Hospital. It is not clear whether he was aware of the overnight breast surgical emergencies protocol.

[133] The fact was that neither Dr Mitchell, Dr Foley nor Dr Greystoke were provided with any information relating to breast surgery patients and the complications which may arise following their procedures. There was no system of induction in place which would have provided them with that information. Irrespective of whether copies of the protocols were posted on a wall somewhere on Ward 6 there was no evidence of any system of checking that nursing and medical staff were aware of them and understood their content nor of any training in how they should operate.

[134] This was despite the fact that it was known to the Lothian University Hospitals NHS Trust Hospital Transfusion Committee in 2002 that an initial audit undertaken by Blood Bank clinicians found that awareness of the Major Haemorrhage Protocol was poor throughout the Trust and this was highlighted to them. They refer to this in their annual report for that year, Crown production 57. It was said to have been reported to the Lothian University Hospital Trust's Clinical Services Division Clinical Risk and Clinical Governance Committee. Raising awareness was said to be part of the LUHT Clinical Governance scheme and an intensive education programme was drawn up and delivered by the Blood Bank consultant. The effectiveness of the education in raising awareness of the Major Haemorrhage protocol was audited once more and a report was said to have been produced which concluded *inter alia* that staff familiarity with the Major Haemorrhage Protocol was a major clinical

governance issue. A copy of this latter report was not produced at this inquiry. What was clear was that whilst it was known for four or more years before Mrs Wightman's death that there was a degree of ignorance of the Major Haemorrhage Protocol amongst medical and nursing staff no adequate steps had been taken to remedy that situation.

[135] By 2006 there remained a profound lack of knowledge of the existence and terms of the protocol amongst the nursing and medical staff at the Hospital. Whilst Lorraine Corrigan spoke of carrying out what appeared to be annual appraisals of the 24 nurses on ward 6 there was no evidence of any system of planned learning for nurses who entered ward 6 or of supervising or assessing the effectiveness of their learning by watching and doing on the ward.

[136] It was the opinion of Professor Thompson that all medical staff, doctors and nurses, should have been made aware of the existence of a Major Haemorrhage Protocol as part of their induction when working with surgical patients in whatever capacity. They need to know that there is a protocol for dealing with major haemorrhage because on a surgical service or a medical service at some point a major haemorrhage may well occur and it may well be on a particular doctor's or nurse's watch. It was also important that nurses and doctors who may be involved in a Major Haemorrhage Protocol situation should know where blood is in the hospital, for example, if they had to get 'O' Negative blood very quickly. If a doctor in a major haemorrhage situation did not know that there was a protocol, what its details were or where the blood was stored it places that member of staff in an impossible position if they do not know where to go to get the necessary shock pack, negative blood or cross

matched blood. Whilst Dr Greystoke knew that there was blood in the Hospital he had not known where it was stored in the Hospital at the time of Mrs Wightman's death.

[137] The evidence was that at least some of the doctors who were dealing with Mrs Wightman from 23.00 onwards did not know that there was a Major Haemorrhage Protocol or its details or where 'O' Negative blood was stored. Professor Thompson's opinion was that they should have been given that information on starting their role in the Hospital and that it is not possible for them in a situation of a major haemorrhage to fulfil their medical duties without having the back up of either having blood or knowing where it is. In his opinion when new staff start on a service, whether nursing or medical staff, they should have training as to how to deal with emergency situations which would include, on a surgical service certainly, where to obtain and how to obtain blood and what the protocol is for dealing with major blood loss. If the staff do not know that protocol or the staff do not know where or how to access the necessary blood there will be, at best, a delay in giving the correct treatment to a patient and, at worst, maybe an inability to deliver that treatment.

[138] Professor Thompson said that registrars and less senior doctors are by definition junior members of staff. He considered that it is just as important for nursing staff to know about the existence of the Major Haemorrhage Protocol and the detail of it as it is for doctors to because if an attempt is being made to resuscitate somebody who has been haemorrhaging, who is bleeding or who is very sick, as Mrs Wightman was, having the nursing staff and the medical staff aware of what the protocols are, what is available and where it is available, means that all members of the staff can work as a team. He said that there is very strong evidence that if a team

of people know what they are doing when resuscitating a patient they are much more likely to be successful than if they do not work as a team or if they do not know what they're doing.

[139] In relation to Mrs Wightman his impression was that pre-operatively there was a good team working together to get her to the operating theatre. During the operation his impression was that there was a good team of anaesthetic and surgery and nursing working together. His impression was that the process of care, including the team working from the recovery room onwards, was not satisfactory. There appeared from what he had heard from the procurator fiscal regarding some of the evidence in the inquiry and from reading the case notes to be a lack of co-ordination both in terms of who was seeing Mrs Wightman, in the documentation of what was written down and in the process of care throughout the post-operative period. The kind of care that she received was likely to have had an adverse effect on her. In his opinion, if a team with the right protocols and processes enacted had acted accordingly in the recovery unit, in the ward and during the evening he felt that Mrs Wightman would have or should have gone back to the operating room and would have not have died.

(ii) the failure to have a system in the Hospital which provided on site out of hours medical cover for Ward 6 with medical staff who had adequate education, training and experience in relation to post operative breast surgery patients, the complications that can arise from that surgery and the relevant protocols

[140] This heading runs parallel to the previous heading. It was a defect in the system in the management of the Hospital that there was no system of providing out of hours medical cover for the Breast Unit by medical staff who had had adequate education, training and experience in relation to post operative breast surgery patients, who were familiar with the different procedures carried out, who were aware of the known complications which may arise and who had the knowledge of and experience in how to deal with such complications should they arise including knowledge of the relevant protocols and their application. That education, training and experience need not necessarily have been provided by the Hospital and may already have been obtained by individual doctors elsewhere before being employed on out of hours duties. On the evidence there was manifestly no such system of employing such medical staff operating in the Hospital in relation to out of hours medical cover for the Breast Unit patients at the time of Mrs Wightman's death.

[141] Mr Dixon gave evidence that on days when he had been operating he regularly remained in the Hospital until 19.00 or 20.00 or so and reviewed his patients during the evening before he went home. As it happened, he was unable to do so on the evening of Mrs Wightman's surgery because he was travelling abroad the following day to take part in a seminar and had a personal errand to attend to that evening.

[142] Irrespective of his personal practice, the system in the Hospital was that "out of hours" as far as medical assistance on Ward 6 was concerned began at 17.00. In practice the evidence was that this meant that if nurses on duty between 17.00 up until 21.00 or at week-ends considered that a patient required review by a doctor her first

port of call would be the on call urology junior house doctor. The HAN team could be called after 21.00 with some overlap with the on call junior house officer whilst still on duty. As discussed, there was a lack of education, experience and training of the on call junior house officer and the doctors in the HAN team in relation to the nature and extent of the surgical procedures carried out in the breast unit, the complications which could arise and how to deal with them if they did arise.

[143] Mr Dixon and Mr Neades both spoke of the Breast Unit at the Hospital being somewhat exposed as regards medical cover out of hours at the time of Mrs Wightman's death. That must be regarded as something of an understatement. It would be of great concern to any patient in hospital and to their family to learn that a doctor whose advice as to their condition was sought at any time was not in a position to provide a truly informed opinion on it and was not in a position to assess or recognise what the most appropriate and necessary steps, if any, should be taken. It is all the more concerning in relation to breast surgery patients where complications, if they do arise, mostly do so in the first 24 hours after their procedure. The first night after their surgery is a period when they are known potentially to arise. The system of on-site out of hours medical cover for patients who had undergone breast surgery in Ward 6 at the time of Mrs Wightman's death did not provide adequately trained and experienced doctors on call on site to ensure the safety of these patients. The system's inadequacy contributed to the death of Mrs Wightman as it led to the failure of out of hours medical staff to recognise that Mrs Wightman was haemorrhaging at a time when successful intervention might have been possible.

[144] It is of even greater concern that at the time of Mr Dixon giving evidence in May 2008 that the same system of out of hours medical cover remained in place for Ward 6. He said that the surgeons on Ward 6 have time and time again raised concerns (it must be assumed with the management of the Hospital) regarding the tenuous nature of the medical cover out of hours after 17.00 and at week-ends, particularly the latter. At those times, if a nurse is concerned about a patient, the only medical person on site to call for review remained the urology junior house officer who is engaged in admitting urological emergencies. The HAN team is covering the whole hospital. In that situation it was a frequent concern of nursing staff that they have to wait an hour before they have a doctor on the ward. It must also be borne in mind that the charge nurse, Lorraine Corrigan, works a shift pattern of 07.30 to 15.30 on four days a week and one shift of 12.00 to 20.00. This means that on most days after 15.30 there is no charge nurse on ward 6 and whoever is the most senior staff nurse on duty, such as Claire Smith, acts in charge.

[145] It was Mr Dixon's opinion that there was a requirement to have a team which has sufficient doctors of sufficient experience and expertise within the Hospital who would be available on call and on site in the Hospital out of hours at week-ends and at night. He expressed the view that the junior urology house officer and the HAN team are not used to dealing with breast patients and did not understand the procedures involved.

[146] As already discussed, on week day evenings and at week-ends ward 6 is covered by the junior house officer from urology. Sometimes that house officer may have had experience working in the breast unit previously but very often they did not.

In relation to any middle grade staff being available on site at those times should the junior house officer need assistance Mr Dixon said that theoretically people were available from the colorectal team who are in the hospital. However the arrangements for colorectal surgery covering the breast unit had lapsed. He had discussed this with Miss Anderson, a specialist breast consultant who was deputy to Mr Neades as the consultant with administrative responsibility for the Breast Unit. Miss Anderson was deputy director of the medical management within the oncology unit. Whilst she was one of Mr Dixon's colleagues she also had an overview of the whole of the oncology directive. Miss Anderson felt that there were not actual arrangements in that regard in place at the time Mrs Wightman in the Hospital. Mr Dixon could not remember the last time or any time that a colorectal registrar or colorectal person had been called to help out in the unit

[147] It was put to Mr Dixon by counsel acting for the Health Board that there would have been an option at the time when Mrs Wightman was in Ward 6 in 2006 for a junior doctor working in the early evening to, instead of calling the consultant on-call, speak to a registrar who was available to assist within the Hospital including the breast care unit. Mr Dixon said that he did not know of any arrangement for out-of-hours for middle grade registrars to be available to Ward 6. He had never heard of use of such arrangements and while he understood that in theory there was some agreement in practice that agreement has never been activated. It was further put to him that at that time Miss Krupa would have been on a rota providing middle grade cover in the early part of the evening. Mr Dixon said that that was true and untrue. The Breast Unit's two registrars took part in the colorectal surgery unit rota but when they are on the colorectal surgery unit rota they do not work in the days in the breast

unit. There would not be a situation when Miss Krupa was available to operate all day and then be on-call for colorectal surgery in the evening. The suggestion that Miss Krupa could have been on a rota providing cover for the period when she was on-call as a middle grade doctor in the early part of the evening for the Hospital and that on other weeks someone else would be on the rota and available in the Hospital, including for the breast unit, was something that Mr Dixon knew nothing about. He had had discussions and frequent correspondence with colorectal surgeons and they have questioned whether it is appropriate that they should be available because they are actually colorectal surgeons not breast surgeons. Mr Dixon had no knowledge during the whole of the time that he had been at the Hospital over the past five years that they have been involved at all. When he was asked if he was prepared to accept that there is or was another level of staff available out-of-hours that he did not know much about, if anything, he was prepared to say he knew nothing about it and that in reality it does not exist. He said that while it may exist on a piece of paper and that somebody said that those people are available he would suspect that if those individuals were phoned and asked to come to the breast unit they would say they do not cover the breast unit.

[148] When asked by the solicitor who was representing the family whether, in his view, the post operative care which Mrs Wightman had received and which had been discussed earlier in his evidence was the result of a systemic failure in care, Mr Dixon said that that what was clear was that the system failed and that it was enormously disappointing from his personal perspective and that of the Breast Unit of which he felt enormously proud. He had spoken earlier of the percentage of cases in which breast surgery patients from the unit required to be returned to theatre being 1%

whilst the general percentage in other hospitals it was 3%. That may have been an average figure relating to all procedures. Professor Thompson said that published data from the Hospital in May 2008 recorded that 7% to 14% of patients have bleeding after *latissimus dorsi* flap reconstruction surgery.

[149] Mr Dixon said that the depth of failure in relation to Mrs Wightman broke his heart to see how many things went wrong. Whilst he understood that individual doctors and nurses were in the firing line he thought that it was something that had to be addressed at a higher level because “they” (who again must be assumed to be the management in charge of the Hospital) knew about the unit’s nursing compliment, knew about the nurses on the ward - they appointed them, knew about who was covering their ward and knew about the consultants being on call. They knew all this and the surgeons had raised it numerous times. In his opinion, the failure was not of anyone who was appearing to give evidence at the inquiry. He thought that the failure was to end up with a situation where patients were placed in the hands of people who were exposed to things that they do not have sufficient experience and training on.

(iii) the failure to have a system in the Hospital of handover from the medical staff of the Breast Unit to the out of hours medical staff or to have a system of handover from the urology junior house officer on call for Ward 6 out of hours between 17.30 and 21.00 to the Hospital at Night Team

[150] At the time of Mrs Wightman’s death there was no system of handover in place from the medical staff on day shift in the Breast Unit to the urology junior house

officer on call for ward 6 from 17.00 to 23.00 nor to the HAN team who were on duty from 21.00, there being an unspecified degree of overlap. This meant that neither the junior house officer nor the HAN team had any information about the particular patients who would be under their care on Ward 6 regarding the extent of the procedures individuals had undergone and their progress thereafter.

[151] The HAN team had been put in place in 2005 and at the time of Mrs Wightman's death there appeared to be certain "grey areas" in its operation. The lack of handover referred to was one of them. Dr Greystoke said that the role of the urology on call junior house doctor in relation to the HAN team was not particularly well described. There was a handover to the HAN team from 21.00 to 22.00 from various junior doctors from different departments of the Hospital but a handover from the urology on call junior house doctor was not routine. Similarly, the relationship of the surgical senior house officer on call at night, such as Dr Savaridas, with the HAN team was not clear and there was some evidence that the surgical team did not regard itself as part of the HAN team at that time. Dr Savaridas said that there was no system of handover from the surgical senior house officer on the day shift regarding ward 6 to the surgical senior house officer on the night shift. Dr Mitchell did not have any handover from any doctor from Ward 6 before she became the on call junior doctor for the ward at 17.00 and she made no contact with the HAN team to advise them about Mrs Wightman's condition and the resuscitation which she had put in place.

[152] It was the evidence of Dr Greystoke that he would have expected to be told about Mrs Wightman so that the HAN team could review her to ensure that the steps put in place by Dr Mitchell were effective. In that case, if the initial resuscitation was

expected to be complete within approximately 30 minutes after Dr Mitchell left Mrs Wightman she would have been due for further review by the HAN team by 22.00. If Dr Foley had attended to review her at that stage I consider that Mrs Wightman's tachycardia, hypotension and her drain volumes by that stage of themselves would have led him at that time to consider haemorrhage, as he did later, and take appropriate action by calling Dr Greystoke and with obtaining a full blood count, requesting cross matched blood, continuing fluid resuscitation. The evidence of Professor Thompson and Elizabeth McLatchie was that Mrs Wightman was unlikely to be very responsive at that stage but she was not in the state of collapse that she was in by 22.45. She would have been very ill but perhaps she would not have been in the same crisis situation as she was later and her life could have been saved.

[153] If the blood count sample had been sent at the earlier time of 22.00 to the laboratory the result would have been swiftly available and it would have been clear to Dr Foley and Dr Greystoke much earlier that Mrs Wightman was in fact haemorrhaging. It is possible if not likely that Dr Greystoke would, with a firm diagnosis of haemorrhage, have implemented the major haemorrhage protocol with which he had been involved days before. Even if the same actions were followed then as later and there was a failure to recognise immediately that the cause of Mrs Wightman's condition was in fact haemorrhage rather than some other possible cause, that diagnosis following the results of a full blood count could nevertheless have been arrived at an earlier stage – possibly before her collapse. Within the time frame when review by the HAN medical team might have taken place of the outcome of Dr Mitchell's instructions to Gillian Edgar I consider that it is possible there could have been successful intervention which might have avoided the death of Mrs Wightman.

(e) facts relevant to the circumstances of Marlene Wightman's death:

(i) Mrs Wightman was prescribed Enoxaparin as an anticoagulant

[154] Page 77 of Crown production 3 forms part of the Hospital's Prescription and Administration Record relating to Mrs Wightman. It shows that she was prescribed Enoxaparin to be administered at 18.00 on 21st and 22nd March 2006.

[155] Mr Dixon gave evidence that after Mrs Wightman's death it became clear to the surgeons in the Breast Unit that they were having too many people having to return to theatre for bleeding. The surgeons then carried out a detailed audit of bleeding that had occurred over the previous approximately 12 month period. They then looked further back to see whether the bleeding rate had increased significantly over recent years and they found that it had.

[156] Clotting and thrombosis in the leg is a significant problem after surgery. An enormous number of precautions are taken to stop clotting in the leg, one of which is to give patients an injection to thin their blood or to reduce their clotting. The substance used is Heparin. Prior to Mrs Wightman's death the surgeons in the breast unit of the Hospital had changed the form of Heparin which they had previously used to a more potent drug called Enoxaparin on the advice of the Hospital management. It was in use for approximately three years and it was clear to all of the surgeons that they were suddenly getting many more patients who were bleeding than before they

began using Enoxaparin. It was clear because they were being called in to the Hospital more often at night and when they were called they found patients to have suffered much more dramatic bleeding than previously and they were having to take the patients back to theatre urgently.

[157] Mr Dixon and a senior registrar looked back through the records of a whole year's operations which ran into thousands. They looked at how many of those patients bled and went back to theatre. They then looked at the records of all the operations carried out in the 12 months before they started using the Enoxaparin. They decided to change their Heparin policy back to their old policy of using the form of Heparin used previously. They monitored it for the first six months after the change. When they did that it was quite clear that overall there was a much greater risk that patients would suffer bleeding after operations and have to return to the operating theatre with the newer Heparin, the Enoxaparin. At that point Mr Dixon and his colleagues put together a paper that was published in the British Journal of Surgery, a copy of which forms Crown production 23. The advice now being given to surgeons throughout the country is that if they are doing breast procedures including the sort of procedures which are done by the surgeons in the Hospital's breast unit they should probably not be using Enoxaparin.

[158] On the basis of the data collated there were highly significant increases in the amounts of bleeding during the period of time in which the surgeons in the Hospital's breast unit were using Enoxaparin. In 2001 when the surgeons were using the older form of unfractionated Heparin they had two patients who bled and who needed to go back to theatre after mastectomy representing of 0.9 per cent of surgical procedures

carried out over the period of that year. When they used the low molecular weight Heparin, Enoxaparin, in 2005 to 2006 ten patients bled and required to return to theatre representing 5.4 per cent of the surgical procedures carried out over the period of that year. When the surgeons returned to using the unfractionated Heparin, the rate of patients who bled and required to return to theatre returned to the previous rate of 1 per cent of the total procedures carried out. Mr Dixon described that as a relative risk increase meaning that a patient is 5.5 times more likely to require a return to theatre because of bleeding after being given Enoxaparin. The surgeons in the breast unit were convinced that the policy which they had adopted of using Enoxaparin was incorrect and decided they should publish their findings and let other surgeons know about them so that other people could gain from their experience.

[159] In 2006, 32 out of 1,807 breast surgery patients in the Hospital went back to theatre because of bleeding. None of them were fatalities. They were taken back to theatre and they were given the appropriate recovery treatment. Most of the bleeding manifested itself as haematomas meaning swelling of the wound rather than fluid in the drains. Mr Dixon said that what made Mrs Wightman perhaps unique was that all of the bleeding in her case was actually into the drains. If a fraction of the amount of fluid which she had in the drains had formed a haematoma inside her body he thought that those caring for her would have been alerted to it and she would have been back to theatre in the early evening. He considered that the fact that she was not clotting was somewhat confusing because normal people, if they bleed, clot.

[160] Mrs Wightman was given Enoxaparin as prescribed on the night before her surgery on 21st March at 18.00. Mr Dixon said that normally with Heparin the dose

would be altered relating to the size of the patient. Mrs Wightman was very slight and he said that there was a hint in medical literature that very slight people are going to receive a much bigger dose kilogram for kilogram than larger patients.

[161] Mr Dixon could not understand what happened on the day of surgery, 22nd March, in relation to whether or not Mrs Wightman was in fact given Enoxaparin as prescribed at 18.00. In the prescription and administration record (page 77 of Crown production 3) there is no entry to say that she was given it; neither is there an entry to say why she was not. It is therefore difficult to know whether Mrs Wightman was given Enoxaparin on the day of surgery because there is no entry on the notes. Mr Dixon said that this had confused him for some time. It should have been given to Mrs Wightman by Claire Smith at 18.00 on the 22nd. On the prescription record it is not signed for to indicate that it was administered though it would have been normal and routine to give the Enoxaparin after surgery. He wondered if was it given and not signed for. If it was not given, he wondered why it was not given because it would be normal and usual practice if something has been prescribed and not given to say why it has not been given in an entry in the notes. One reason for not administering the drug would be if a patient was seen by the nurse to be bleeding at the time when it was due to be administered. If that had been so in Mrs Wightman's case Mr Dixon would have expected the nurse to call in a doctor.

[162] The pattern of bleeding which the surgeons in the breast unit saw in all the patients who bled after having had Enoxaparin was that about an hour and a half after being given the injection they bled. If Mrs Wightman was not given Enoxaparin as prescribed at 18.00 on 22nd March it was unlikely to have had any connection with the

bleeding which occurred. If she was given it, it may have had a connection on the basis of the evidence ingathered by Mr Dixon and his colleagues. If it had been administered and contributed to Mrs Wightman's bleeding it need not have been a terminal event. None of the other patients who bled after receiving Enoxaparin in the Hospital Breast Unit died. The fact that they were bleeding was recognised and appropriate remedial action was taken.

[163] It may be likely that Mrs Wightman was never given the prescription of Enoxapain at 18.00 on 22nd March as Claire Smith was not attending to Mrs Wightman between 17.00 and 19.00. However, the absence of any record of either it having been given to Mrs Wightman or of why it was not given together with the question mark over the accuracy of the drain chart entries means that any consideration of the use of Enoxaparin as a factor in Mrs Wightman's death cannot arrive at a conclusion. Its use may or may not have occurred and may or may not have been a relevant factor.

[164] In any event, the death of Mrs Wightman through bleeding has led the surgeons in the breast unit at the Hospital to consider the extent and pattern of bleeding in their patients as a whole. Through doing so they have been able to find a link between Enoxaparin and serious bleeding occurring in breast surgery patients. They have shared that information with the rest of their profession and have themselves stopped using Enoxaparin in their procedures. As a result there has been a positive outcome of a much lower rate of patients having since suffered serious bleeding which required a return to theatre after breast surgery in the Hospital than was the case at the time of Mrs Wightman's death.

(ii) the body of a young fit patient can compensate for blood loss when it occurs

[165] Mrs Wightman was assessed as being young and fit by the medical witnesses. Whilst it cannot be ascertained with certainty exactly when she began to haemorrhage post operatively it was accepted by every witness that she was haemorrhaging and that with the gift of hindsight she was doing so for a number of hours. She was losing a significant proportion of her circulating blood volume and she was in a life threatening condition. Despite this, it was the evidence of Dr Cullen, Miss Krupa and Mr Dixon that Mrs Wightman looked remarkably well when they reviewed her during the afternoon. Dr Mitchell thought that she looked relatively well when she saw her later in the evening. Each of these witnesses agreed that fit, young, healthy people can lose substantial volumes of blood, have a fast pulse, have relatively low blood pressure including a reduced blood pressure and reduced pulse pressure and appear well until they reach a critical point when they have insufficient circulating blood to support their vital organs and they head towards cardiac arrest. In such patients, the body compensates for the difficulties it is operating under and makes the person appear well. This had happened in the case of Mrs Wightman. The fact that such patients can compensate is well known in medicine but did not appear to be known to all the nursing staff in recovery or Ward 6. It was a relevant factor in the failure of any of the doctors and nurses who reviewed Mrs Wightman before her ultimate collapse to attribute her tachycardia, hypovolemia and drain volumes to bleeding in the first instance.

(iii) Mrs Wightman's records were incomplete and contained inaccuracies, errors and omissions

[166] Over the weeks of this inquiry constant reference was made to the Hospital's nursing and medical records relating to Mrs Wightman's treatment and care in the breast unit, Crown production 3. From an early stage it was clear that there were many inaccuracies, omissions and some unexplained alterations in these records which have at times hampered the Inquiry's ability to reveal exactly what had occurred at certain points in the matters under scrutiny.

[167] In looking at these records it is important to consider what is their purpose and function. Their purpose must be to provide all such historical and personal information relating to individual patients as is relevant and necessary for their care; to provide an accurate history of the condition of the patient recorded as at the accurate time when their condition was being observed; and to provide an accurate history of any treatment given recorded as at the accurate time when it was administered. Their function must be to provide an accurate continuing picture of the condition of a patient and their treatment so that improvement or deterioration can be observed and appropriate and safe action can be taken in relation to the particular patient. They must provide a clear record of what treatment has been administered and when, not only so that its effectiveness can be assessed but also to avoid harmful duplication of treatment. In a hospital situation where there will routinely be a number and variety of medical and nursing personnel involved in the care of any patient the only way in which a particular nurse or a particular doctor can know what has gone before and what still might need to be done in relation to that patient will often be the

medical and nursing records. In the case of Mrs Wightman these records could not be entirely relied upon.

[169] I have already discussed the entries made in the drain chart by Claire Smith and the unexplained obliteration of one entry. There was a further unexplained obliteration of an entry relating to Ondansetron in the prescription records (page 78 of Crown production 3).

[170] The anaesthetic record (forming pages 3 to 6 of Crown production 3) provides for the patient's heart rate, weight and height to be recorded on its first page as part of the patient's pre-op assessment. None of that information was recorded in relation to Mrs Wightman yet it must be considered to be relevant patient information as the form provides for it to be recorded. Similarly, her weight was not recorded on the SEWS chart which also provides for that information to be recorded. In the case of Mrs Wightman that information proved to be very relevant and it was not flagged up on the relevant documentation as it should have been.

[171] Claire Smith failed to complete any post operative care plans for Mrs Wightman (pages 71 and 72 of Crown production 3) and there is no way of knowing if she considered this document during her care of Mrs Wightman. It might have been useful if she had done so as it highlights under the heading of problem/need on the first page the potential for shock and the care of drains.

[172] After making an entry in her nursing care notes said to be as at 14.40 (page 63 and 64 of Crown production 3) Claire Smith failed to make any further completion

of these notes as she was required to do. It was her evidence that, whilst at one time she did complete patient nursing notes at the end of her shift, at the time of Mrs Wightman's death it was no longer her practice to do so before she left the Hospital at the end of her shift. She would write them up at some point subsequently. These nursing notes were never completed by her and there is therefore no contemporaneous record of what care she provided to Mrs Wightman during her shift after 14.40.

[173] It is not clear if the absence of these notes was or was not apparent at the handover to Gillian Edgar. The handover itself involved taped information from the previous shift and face to face discussion. If Gillian Edgar looked at the nursing notes during the shift handover it would have been obvious that they had not been completed by Claire Smith. If she had seen that that was the case and was content that Claire Smith departed without writing them up she must have accepted that practice. If that fact was not apparent to Gillian Edgar during the handover or during her shift that would also be a cause for concern. It must have been prejudicial to Mrs Wightman's care in Gillian Edgar's shift that there was almost no written nursing record to refer to from the earlier shift.

[174] After 15.00 there is no entry by Claire Smith in the FLAP/Replantation chart (page 57 of Crown production 3) as to the condition of the flap. It was her evidence that she had chosen instead to make entries relating to the back wound and the flap at the foot of the SEWS chart in a series of ticks which can be seen there. These ticks provide no information as to the condition of the back wound or the flap. By the time that Gillian Edgar was on duty and examined it at 20.30 the appearance of the flap had passed from pink as recorded at 15.00 to pale as recorded in the

FLAP/Replantation chart. This change reflected Mrs Wightman's blood loss by then and an impaired blood supply to the flap.

[175] As already noted in the findings in fact, the SEWS totals as calculated for 14.30 and 15.00 by Claire Smith were wrong. The pain score and nausea score on the SEWS chart are recorded as being nil until 19.00 and were not recorded at all by Gillian Edgar. Yet the evidence showed that Mrs Wightman did experience some pain and discomfort during the afternoon and considerable discomfort when her family were visiting her in the evening. She was nauseous and sick in the evening during both Claire Smith's and Gillian Edgar's shifts. In the Opioid and PCA monitoring chart (page 28 of Crown production 3) pain score on movement is recorded at level 5-7 at 16.00 and level 5 at 17.00, the scoring system being 0 for no pain rising to 10 for worst pain imaginable. Claire Smith never completed another entry in the Opioid chart after 17.00. There is no entry against pain score entered on that chart by Gillian Edgar for 20.30 but she entered a nausea score of 3 (meaning persistent nausea/vomiting despite treatment) at that time though no nausea score is entered in the SEWS chart for 20.30. There is a nausea score of 0 recorded by Gillian Edgar in the Opioid and PCA chart at 22.00 yet it is recorded on the prescription and administration record (at page 79 of Crown production 3) that at the same time she gave Mrs Wightman an injection of cyclazine, an anti-emetic. The SEWS score recorded at 21.30, 22.00 and 22.30 is incorrect. It should have been scored at 4 instead of 3 at each of those times and in accordance with the instructions on the SEWS chart a junior doctor and a senior nurse or nurse practitioner should have been called to review Mrs Wightman.

[176] If Gillian Edgar was correct in saying in her nursing notes that she left Mrs Wightman at 22.00 to attend to other patients and returned at 22.45 to find her unresponsive then the entire entry in the SEWS chart as at 22.30 must be in question. As already discussed, both Elizabeth McLatchie and Professor Thomson considered it to be unlikely that Mrs Wightman could have been alert and chatty by that stage as was claimed by Gillian Edgar and I have accepted their evidence on that point.

[177] Gillian Edgar wrote her nursing notes in retrospect (pages 63 to 69 of Crown production 3). Whereas she records that Dr Mitchell prescribed 500mgs gelofusion to be administered over 1 hour when she was called to review Mrs Wightman I have preferred Dr Mitchell's evidence that she prescribed it to be administered over 30minutes as is noted in her medical notes (page 32 of Crown production 3).

[178] Both Claire Smith and Gillian Edgar spoke of routinely inserting the time of the next planned review of a patient into the SEWS chart or other charts at the time of completing the previous set of observations. For example, when carrying out the observations and recording them on the SEWS chart as at 22.00 Gillian Edgar said that she filled in the time of 23.00 at the top of the SEWS chart in readiness for the next time she planned to carry them out. This further supports the unlikelihood of the observations noted as being carried out at 22.30 having in fact been observed at that time and, as Gillian Edgar said in her evidence, she never reached 23.00 with Mrs Wightman that night as she found her to have collapsed before then.

[179] It can be appreciated that when nurses have several patients to care for and note observations for they cannot all be dealt with at the same time and that the observations themselves take some minutes to carry out. However, it cannot be regarded as good practice to fill in the time when they are expected to be carried out in advance as it is likely lead to inaccuracy either through a turn of events or laxity. Another nurse or a doctor looking at such records subsequently would not be provided with an accurate picture of the history of the patient at any given time. That could affect the view taken of a patient's progress and the patient's safety. It must be important to record any observation as at the time when it was actually observed.

[180] As regards the medical notes relating to Mrs Wightman, there is no record of the reviews by Mr Dixon, Miss Krupa or Dr Cullen of Mrs Wightman either in recovery or on Ward 6.

[181] Given the physical proximity of Ward 6, the recovery room and the theatre to one another it is easy and convenient for surgeons and anaesthetists to briefly look in on their recovering patients either whilst they remain in recovery or once they have returned to the ward. It is no doubt reassuring for these patients to be visited and reviewed by these very senior doctors but it raises several questions. How can it be known by other medical or nursing staff what is being checked, if anything, by these doctors if there is no record of it? What reliance can be placed upon these visits by other medical or nursing staff? In the case of Mrs Wightman considerable reliance was placed on these reviews by Claire Smith and Gillian Edgar.

[182] It was clear from his evidence that apart from being interested in Mrs Wightman's well being in a general sense, Mr Dixon was only interested in the viability and vascularity of the flap in his visits to her. He was not considering all of Mrs Wightman's observations including her heart rate, her blood pressure or the volumes in the drains. Miss Krupa did consider these observations, but as discussed, there is some question as to what she saw in the drains. She said that she was also concerned about the viability of the flap in relation to Mrs Wightman's blood pressure and prescribed more fluid to be administered at an increased rate to support the blood supply to the flap. She reported her findings and actions to Mr Dixon. Dr Cullen was aware of the drain volumes in recovery and the blood loss in theatre. She was no longer concerned with these matters after Mrs Wightman was discharged from recovery. Her visit to Mrs Wightman on the ward later in the afternoon was as a courtesy to check that her pain relief was effective.

[183] The recovery nurses gave evidence of being reassured by Dr Cullen's lack of concern about Mrs Wightman's hypotension which they had raised with her. This reassurance was passed on to Claire Smith who was also reassured at handover from the recovery nurses to learn that Mr Dixon had also seen Mrs Wightman in recovery. Claire Smith was also clearly very reassured that Mrs Wightman was visited by Miss Krupa, Mr Dixon and Dr Cullen between approximately 16.00 and 17.00. I consider that it was no coincidence that after their visits, Claire Smith did not carry out any further observations of Mrs Wightman after 17.00. She was unconcerned about Mrs Wightman to the extent that she failed to continue with the resuscitation which had been prescribed by Miss Krupa and did not replace the empty fluid bag when it ran out until prompted to do so by the Wightman family.

[184] Claire Smith passed the reassurance created in her mind on to Gillian Edgar and told her that Mrs Wightman was on two hourly observations. Upon Claire Smith's own evidence that was clearly not the case. Standing Mrs Wightman's continuing hypotension and tachycardia it was the evidence of Elizabeth McLatchie that the observations should have been more frequent. Gillian Edgar in turn passed the reassurance created by the visits of the senior doctors on to Dr Mitchell. Dr Mitchell was partly reassured by that and by the assurance of someone whom she regarded as a senior nurse that the volumes in Mrs Wightman's drains were not unusual, which they clearly were. In a circular fashion, Gillian Edgar was reassured by the attendance of Dr Mitchell and this may have led to her failure to maintain the fluid resuscitation prescribed by her and to seek earlier further review of Mrs Wightman.

[185] As there was no record of what individual aspects of Mrs Wightman's condition had been considered, if any, by the surgeons and the anaesthetist in their visits to Mrs Wightman on ward 6 it could not be clear to anyone else who was concerned in her care thereafter that none of them were concerning themselves with her presentation in its entirety. The fact of these visits having taken place could not be regarded as something to be relied upon. The fact that they were relied upon was a danger for Mrs Wightman.

[186] If doctors were required to record every short visit to patients of the sort described above it might provide a disincentive for them to be made at all. However, Professor Thompson was of the opinion that if doctors had reviewed Mrs Wightman he would have expected to have found a note of that somewhere in the medical or

nursing records. The record could have been made by either a doctor or a nurse. It would demonstrate that a review had taken place and it possibly would give the opportunity to summarise what had happened in the previous two to six hours and give due attention to what had changed since the last formal review, if anything. Professor Thompson said that he could not find a written note either in the nursing or the medical notes that any of the three doctors who had visited Mrs Wightman during the afternoon and he thought that it would be good practice for a note of these visits to have been made.

[187] Professor Thompson did not think that if there had been any note made of the visits being there would have affected the outcome. The point that he was making was that by writing things down it often clarifies in his mind what he is seeing when reviewing a patient and by writing down the numbers and the information contained in the SEWS chart and the drain chart in black and white it begins to pull all the data together. It would have shown in the case of Mrs Wightman that, if the figures in the drain chart were accurate, there was a real problem for this woman at this time when the reviews took place which needed action. He considered that it would have been helpful if each doctor had noted down what they had or had not checked themselves because of the potential problem arising when there are several people seeing a person of one person possibly making an assumption that somebody else has checked something or done something. In the opinion of Professor Thomson the making of a record of their review could therefore be of assistance to the doctors themselves when assessing Mrs Wightman and might also have been of assistance to nurses and junior doctors in their care of Mrs Wightman afterwards. This view appears to have been shared to some extent in the Hospital. After the death of Mrs Wightman it was

agreed that medical staff would document in the patient records when reviewing a patient when there were concerns or changes to care planned.

[188] It could be seen from looking at the anaesthetic records, the SEWS chart and the drain chart that different people completed their entries in the records in different ways which could cause confusion. Several witnesses considered that the entries relating to theatre blood loss at page 4 of Crown production 3 led to confusion as to the total and two different figures were recorded for that in the fluid balance chart (page 58 of Crown production 3) and the peri-operative care record (page 74 of Crown production 3). In the opinion of Elizabeth McLatchie it is important that nursing records of observations should be completed in a consistent way. Otherwise confusion about the information recorded can arise and compromise patient safety.

[189] It might be considered that the standard of record keeping in relation to Mrs Wightman on Ward 6 was symptomatic of the standard of care that she received there.

(iii) lack of practical management of ward 6

[190] The lack of adequate induction and education of nurses and junior out of hours medical staff including the failure to ensure that important protocols were made known to that staff, the lack of a system of handover between medical staff, the lack of adequately experienced out of hours medical cover, the inconsistently completed records, the uncompleted records, the wrongly completed records, the administration

of drugs by a nurse of a drug which had not been prescribed, the apparent non-administration of drugs that had been prescribed by two nurses, the failure of two nurses to follow the instructed rate of fluid resuscitation, the passage of two hours between observations of a patient who had undergone major surgery and had been consistently hypotensive and tachycardic thereafter could individually be regarded as indicative of poor management of Ward 6. Taken together and considering that they were all present over less than one day in relation to the care of Mrs Wightman they must be regarded as indicative that there were serious problems with the management of the ward at that time.

[191] In March 2006 there were 19 beds in ward 6 which were predominantly occupied by surgical patients but were also occupied by oncology patients. Lorraine Corrigan said that on the day shift from 7.30 to 20.00 there were 4 trained nurses and a clinical support worker. She said that she dipped in and out of the ward but did not allocate herself to look after patients. On the night shift from 19.30 to 08.00 there were 2 trained nurses and a clinical support worker. Lorraine Corrigan said that she was in charge of the rotas.

[192] Both Claire Smith and Gillian Edgar spoke of ward 6 being extremely busy on the day of Mrs Wightman's surgery. The ward was full with a mix of surgical breast patients and oncology patients who were either receiving chemotherapy or had been admitted with infections or other complications arising from chemotherapy. One of the surgical patients on the ward had learning difficulties and required a high degree of supervision by the nursing staff. They regarded the oncology patients as fairly demanding in terms of the medicines which required to be administered to them

and the time that that took up. Claire Smith said that morale was low in the nursing staff on ward 6.

[193] Claire Smith and Elaine O'Neill were allocated responsibility for the care of 8 of the 19 patients. Claire Smith said that several of those were oncology patients who required a lot of care and she found it to be a stressful day. She learned when she arrived on shift that morning that the charge nurse, Lorraine Corrigan, would not be coming on shift that day and that as the next most senior nurse she would require to act in charge of the ward.

[194] When considering the number and mix of patients on ward 6, it was the opinion of Elizabeth McLatchie that it was not suitable to mix breast surgery and oncology patients in the same ward. Many of the patients on the ward would be neutropenic, i.e. they would have low resistance to infection, and it was not appropriate to have those patients in the same ward as patients with infections. There was an obvious risk of cross infection particularly if the same nurse or nurses were tending both infected patients and those with low resistance. If those latter patients caught an infection it could be fatal for them. The required administration of drugs including chemotherapy to the oncology patients would take up a lot of time for the nursing staff. Elizabeth McLatchie had never come across the mix of patients that existed in ward 6 at any point in her nursing career. In her view, it placed burdens on the nursing staff and was not conducive to patient safety.

[195] In his evidence, Mr Neades said that the consultants on ward 6 had been concerned for a long time about what they considered was an inappropriate mix of

patients there. He confirmed that the oncology patients often required a high degree of care from the nursing staff which left them less time to spend on the breast surgical patients. The consultants had expressed their concerns to senior management at the Hospital.

[196] In a typical surgical ward – with only surgical patients – Elizabeth McLatchie considered that a reasonable nurse to patient ratio would be one nurse to three patients. In the view of Professor Thomson that ratio should be one nurse to two patients for patients who had undergone the sort of surgery that Mrs Wightman had. In the case of Mrs Wightman the ratio of nurse to patient was one nurse to four patients who were oncology as well as surgical patients. Therefore the evidence suggests that there was some foundation for both Claire Smith and Gillian Edgar having considered themselves to be very busy on ward 6 on the day of Mrs Wightman's return there after surgery.

[197] This appears to have been acknowledged to some extent within the management of the Hospital as since the death of Mrs Wightman there had been some reorganisation of ward 6. By the time of this Inquiry the layout of the ward had been changed. There were by then only 11 overnight beds and in addition 4 day beds for patients who were able to go home after their procedures.

[198] While this new arrangement meant that there was less scope for the oncology patients to be "boarded" there and was regarded as an improvement by Mr Nades it remained the case that oncology patients, including male patients, were still being boarded on ward 6. Mr Dixon remained unhappy about that and the fact that the

consultant breast surgeons on Ward 6 had no say or control over what kinds of patient were being placed in the Breast Unit. It remained the view of Mr Neades' that ward 6 should be a surgical ward for breast patients only.

[199] The reason for oncology patients being placed in the breast unit appears to have been that the breast unit was part of the oncology directorate at the Hospital. However, the breast unit is first and foremost a surgical unit. The patients have different needs from the oncology patients. More than one witness referred to that fact not always being appreciated within the Hospital.

[200] It may or may not have been the case that the relatively high patient to nurse ratio and the competing nursing needs within the mix of patients were contributing factors in the lax record keeping practices and unorthodox procedures which have been discussed becoming established in Ward 6. Be that as it may, the fact that these defects were not picked up by the managers of the ward may have been due to a lack of on site practical nursing management there. Lorraine Corrigan spoke of her role as charge nurse having become increasingly managerial. It was not clear what she meant by that but in practical terms it appeared to mean that she was not looking after patients herself, she was not routinely auditing the nursing records (which Elizabeth McLatchie considered to be one of the duties of a charge nurse) and was not aware of any of the matters of concern which have been discussed. She was not physically present on the ward after 15.30 on 4 out of the 5 days that she was on duty per week. There was a lack of practical supervision of what was actually being done or not done by nurses on the ward.

[201] Neither Lorraine Corrigan nor Kathryn Brechin was aware that there was any problems with the morale of the nursing staff. When Claire Smith was recruited by the most senior nurse manager at the Hospital, also named Claire Smith and not a witness at the inquiry, from elsewhere in the Hospital to work on Ward 6 she had expressed concern about her lack of experience with breast surgery patients. She was told that she would learn as she went along and an arrangement was made for her to work initially alongside a senior and experienced nurse in terms of surgical breast patients who was about to go on maternity leave. This arrangement did not in fact take place as the nurse went on leave before Claire Smith arrived and no alternative arrangement was made by management. Claire Smith said that no-one appeared to be in charge of education or training on Ward 6.

[202] Apart from the consultants, nearly all the nursing and medical staff who attended to Mrs Wightman on Ward 6 lacked adequate experience, education and training in relation to breast surgery. Both Claire Smith and Gillian Edgar had only started to work full time with breast surgery patients in the autumn of 2005; Dr Mitchell, Dr Foley and Dr Greystoke were all unfamiliar with the surgical procedures which were carried out on ward 6. I have already discussed their lack of training and induction. Whilst Lorraine Corrigan said that she liked to have two senior nurses on duty on the night shift, Sarah McDonald had only joined ward 6 three weeks before Mrs Wightman's death and the evening of 22nd March was her first night shift.

[203] There appeared to have been a general lack of communication surrounding the medical and nursing management of the ward. Protocols were produced but were not adequately brought to the attention of the relevant staff. Lorraine Corrigan was

uncertain if she had ever brought the overnight breast surgery emergency or the major haemorrhage protocols to the attention of the nurses on ward 6 before Mrs Wightman's death. She clearly had no organised system for doing so or of recording whether or not she had done so. The nurses and doctors operated in some respects in parallel lines. They kept separate records which were kept in separate places. The lack of handover from day shift medical staff and out of hours medical staff and within the out of hours medical staff has been discussed. There was a perception of delay in blood being supplied late on in the day. The evidence suggests that the apparent delay stemmed from a delay in it being requested with the appropriate blood sample and from a failure to communicate how very urgently it was required.

[204] In discussing the management of ward 6, it is appropriate to consider how Mrs Wightman's family were treated by the Hospital once it became clear that she was gravely ill and after she had died.

[205] Mr Wightman gave evidence that he received a telephone call from the Hospital at about 23.50. He was told to come to the Hospital immediately. He did not know who the person was who was calling him and was not given any information by that person as to why he was to attend. He said that he thought the worst. He arrived at the hospital at 00.20 and went directly to ward 6. Someone was waiting for him there outside a room which was next to room 7 where Mrs Wightman was. He was directed into that room without explanation and the person who met him remained there with him. While he waited Mr Wightman was able to see into room 7 in the reflection of a picture which was on the wall opposite the doorway. He saw a number of people in the room and saw that they were administering CPR.

[206] John and Lisa Wightman arrived at about 00.30 to 00.40 and joined Mr Wightman in the room where he had been waiting. John watched what was going on in room 7 from its doorway and in the reflection of the picture. The person who had met Mr Wightman remained with them. No information was given as to what had happened to Mrs Wightman.

[207] At around 01.05 a doctor who appeared distressed came into the room and told the family that Mrs Wightman was not the lady who had been brought in to the Hospital. Shortly afterwards another doctor came into the room and expressed sympathy to the family. At about 00.30 a doctor returned and told the family that staff had been unable to save Mrs Wightman's life. The family asked to see her and were asked to wait for 15 minutes while she was cleaned up. The family did have an opportunity to see Mrs Wightman. They then wanted to go home but were told to wait for Mr Neades to come in to the Hospital to speak to them.

[208] The Wightman family required to wait until after 02.00 for Mr Neades to come to the Hospital. He met with the Wightman family and all he said was that he was sorry and expressed sympathy. He did not offer the family any further information. The family returned to Mr Wightman's home. In the morning Mr Wightman telephoned the Hospital. He did not know to whom he was speaking. He said that he wished to come in to the Hospital and speak to someone about his wife's death. The person taking the call questioned why Mr Wightman felt that was necessary. He was told to call back later. Mr Wightman was unhappy about that call.

He did ring back and was told that he and his family could come in to the Hospital after 10.00. John and Lisa wanted to visit their mother's body.

[209] When the Wightman family arrived at the Hospital they were met at the main reception and were asked to wait in the waiting room there. Someone came and took them up to Ward 6 where they were put in the same room that they had been waiting in the night before whilst the efforts to save Mrs Wightman's life were ongoing. They were told to wait there because Mr Dixon wanted to speak to them. A female member of staff remained with them in the room whilst they waited. When Mr Dixon arrived he was extremely upset. He told the family that he could see someone bleeding to death outside a hospital but not inside. He said that the operation from his side was fine and that the after care was at fault. He told the family that if he had been called he could have saved Mrs Wightman's life. As already stated, he advised the family to employ a lawyer. The female member of staff rebuked Mr Dixon for giving the family too much information.

[210] Mr Wightman said that he and his family were stunned to learn that Mrs Wightman need not have died and were extremely upset. They were told at the Hospital that they would be invited to return to discuss and have explained the circumstances of Mrs Wightman's death. That invitation was never made. Crown production 29 records that a positive decision was made at a meeting on 29th March 2006 by the Hospital management to have no contact from the breast unit with the Wightman family.

[211] I believe that anyone considering the way in which the Wightman family were treated at the Hospital on the night of Mrs Wightman's death and thereafter as narrated above would regard it as fairly appalling. The poor relationship between the Hospital and the family has continued with reluctance being shown by the Hospital to provide information and records when requested to do so. The Hospital has no doubt been acting on legal advice but there must be a better way to treat people who have been so suddenly and shockingly bereaved. It was submitted on behalf of the family of Mrs Wightman at the inquiry that the consultation process which was at that time underway in relation to the conduct of Fatal Accident Inquiries should consider the need for full and unreserved disclosure in inquiries of this nature. Whilst I believe that the general public would support such a requirement so that the fullest possible information regarding the circumstances of a death would be made known to a deceased's relatives, Lord Cullen has concluded the consultation process. He has now completed his consideration of the conduct of Fatal Accident Inquiries and has recently published his Report.

[212] Another matter of concern to the family was the existence of the picture which acted as a mirror outside room 7 so that they could view what was happening inside the room. They hoped that other families would not be confronted by the same situation. It can be assumed that the picture would have been put there in order to alleviate the stark appearance of a ward and it is unlikely that anyone would have considered that it would act as a mirror in the way that it did. Perhaps the management of the Hospital should consider the positioning of glass fronted art work with care.

[213] It was also submitted on behalf of the Wightman family that I should refer or report certain medical and nursing staff involved in the care of Mrs Wightman to their respective professional disciplinary bodies as part of my determination. The family are naturally very upset by her unnecessary and preventable death. However, I consider that it is not part of the powers of a sheriff to make any such referral within the scope of a fatal accident inquiry.

[214] There have been a number of changes in documentation in the Breast Unit of the Hospital since the death of Mrs Wightman.

[215] The drain volume chart has been amended in the Hospital (production 1 for the Health Board) to ensure that individual hourly drain volumes, cumulative hourly drain volumes and cumulative total drain losses are recorded upon it. The revised chart also provides a box for the estimated theatre blood loss to be recorded and contains a box for changes such as a change of drain bottle to be recorded. It allows for total drain volumes to be added to the estimated theatre blood loss to give a total blood loss for the patient each time the drain losses are checked and recorded. After consultation with nursing and medical staff this revised style of drain chart has been in use in the Hospital since September 2007. Every witness in the inquiry who was asked to consider this document thought that it was a great improvement on the form in use at the time of Mrs Wightman being on ward 6. It enables the patient's total hourly drain loss and total drain and theatre blood losses to be seen clearly at every stage of completion of the form by nursing staff.

[216] A recovery proforma has also been developed by the Hospital's anaesthetic team (production 4 for the Health Board) for use with all major breast surgery patients. Shortly after Mrs Wightman's death Dr Cullen initiated informal discussions about developing such a proforma with her anaesthetic colleagues as it was thought that it would be valuable to act as a trigger for staff to recognise when they need to seek review of a patient and gives guidance to enable them to provide concise information to an appropriately senior person.

[217] The chart was introduced on a trial basis approximately one month later and has continued to be revised routinely in the light of experience and feedback from nursing and medical staff. It identifies the patient's weight, estimated circulating volume, blood loss in theatre, pre-operative haemoglobin and haemacue reading in recovery and gives individualised criteria which provide triggers for contacting more senior staff and seeking review of the patient. It originally provided for stipulation of acceptable parameters for heart rate and systolic blood pressure but no longer does so as it was considered to be a duplication of the SEWS chart. Urine output has been added as an additional trigger. At the time of the Inquiry a catheterisation protocol was about to be introduced for certain patients undergoing bilateral procedures and who are expected to be in theatre for more than 5 hours. In addition any patients on the ward who have not passed urine at 4 hours post operatively will be catheterised on the ward. All catheterised patients will have hourly urine volumes checked in the acute post-operative period.

[218] Since Mrs Wightman's death the Overnight Breast Surgical Emergencies Protocol has been revised and amended by Mr Barber, consultant breast surgeon at the

Hospital in October 2006. Mr Barber is said to have circulated this amended protocol to all relevant staff groups. A copy of this revised protocol forms Crown production 15. It highlights large drain volumes in addition to marked swelling of the wound as being symptomatic of bleeding after surgery. It gives additional information about management but makes it clear that such management does not treat the underlying ongoing bleeding and directs that the case should be discussed immediately with the on call consultant. Every witness who was shown this revised protocol considered it to be a considerable improvement upon the earlier version (Crown production 14) which existed at the time of Mrs Wightman's death and thought that it would have assisted recognition of her condition had it been available and made known to staff at that time.

[219] The SEWS chart was revised by NHS Lothian in 2007 and there has been a working party and implementation group to roll out the revised document. Guidelines have been prepared under the heading SBAR (Situation, Background, Assessment, Recommendations) to assist clinical staff to develop a uniform approach to communicating information about a sick patient's condition.

[220] There has been a move to merge the nursing and medical records so that all a patient's records can be located and accessed in one place.

[221] The inquiry was advised that there have also been changes in practice in the Hospital.

[222] A full blood count is checked routinely 6 hours post operatively in all patients following major surgery since October 2006. The result can be obtained within 10 minutes of a blood sample being delivered to the laboratory.

[223] The “grey area” of the respective responsibilities of the HAN team and the on call junior urology house officer for surgical patients on Ward 6 was clarified with the HAN team confirming that they were available to support surgical patients from 9pm.

[224] Teaching had been provided by Dr O’Shea at the Hospital over the four months prior to the inquiry to every nurse employed within ward 6 regarding management of post operative patients. Details are set out in production 3 for the Health Board.

[225] A medical and surgical emergencies course was undertaken by Gillian Edgar and Lorraine Corrigan in 2006.

[226] All nurses within the Edinburgh Cancer Centre, of which Ward 6 forms part, are said to have a period of orientation during which they are given training in effective documentation and reminded of NMC guidance on accurate record keeping. Each nurse was said to be provided with a record keeping learning pack (tab 11 of production 3 for the Health Board).

[227] There is now a system of formal handover of the breast surgery patients to the junior on call team for surgery at the end of each working day.

[228] The recognition by the Hospital that practical steps required to be taken to improve and manage patient care in the Breast Unit and for such steps to have been taken is to be commended. Professor Thompson also commended the revised proformas and charts and suggested that they should be promulgated and disseminated throughout Scotland so that all breast surgery units can learn whatever it is possible to learn from Mrs Wightman's death. I have not made any formal recommendation to that effect as that is a matter for medical and nursing professionals to discuss with a view to arriving at a consensus on how it can best be achieved.

[229] The revised drain charts and recovery pro formas , education on the SEWS chart and guidance on accurate record keeping should provide consistency of documentation but only if supported by regular audit of the records kept for individual patients on the ward. The system of random audit of records which was spoken of by Katherine Brechin as having been recently introduced could not begin to address or pick up the level of inaccuracy in record keeping which was present in Mrs Wightman's records. It is a matter of concern that the record keeping open learning pack (Tab 11 of production 3 for the Health Board) which the Inquiry had been told had been part of the training given to all nurses within the Edinburgh Cancer Centre had never been seen by Lorraine Corrigan before being put to her in her evidence and had not, according to her, been given to the nurses on Ward 6.

[220] In relation to out of hours medical cover for ward 6 Mr Dixon referred to the possibility of the existence of a piece of paper somewhere which stated that oncology doctors would provide cover but in fact that was not happening. As with the case of

the lack of dissemination of the overnight breast surgery protocol and the major haemorrhage protocol to staff at the time of Mrs Wightman's death there would appear to be an issue within the management of the Hospital of translating typewritten words into action.

[231] The teaching of nursing and medical staff which was said to have taken place since Mrs Wightman's death was no doubt valuable but there was no evidence of a structured system relating to required competencies which included assessment. It might be thought to have been surprising that Lorraine Corrigan was said to have felt that the surgical emergencies course which she attended with Gillian Edgar after Mrs Wightman's death in 2006 did not provide value in terms of new knowledge standing the state of knowledge of the witnesses at the inquiry as to how to recognise or deal with such emergencies at that time.

Recommendations

In the light of my findings and determination in terms of section 6(1)(c), section 6(1)(d) and section 6(1)(e) of the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976 I make the following recommendations:-

1. That all nursing staff recruited in the Hospital to care for post-operative breast surgery patients should either
 - (i) have sufficient prior experience in caring for surgical patients as to be familiar with the nature and extent of the particular procedures which have been carried out on these patients, have knowledge of the detailed requirements of their care, be aware of

known complications which can arise from these procedures and how to recognise them, and have knowledge of and a clear understanding of what action to take and how to implement all necessary procedures and protocols should such complications arise;

or alternatively,

(ii) in the case of nursing staff recruited without such prior experience, they should be required to undergo a structured and supervised programme of induction on the nature and extent of the particular procedures which have been carried on these patients, be educated in the detailed requirements of their care, be made aware of known complications which can arise from these procedures and how to recognise them, and be given knowledge of and a clear understanding of what action to take and how to implement all necessary procedures and protocols should such complications arise.

Such nursing staff should not be given sole unsupervised responsibility for the care of such patients until they have completed such an induction programme;

and

(iii) that there should be regular compulsory continuing education of nursing staff who care for surgical breast patients to refresh and confirm their existing knowledge and experience.

2. That all junior medical staff in the Hospital who provide out of hours cover for the care of post-operative breast surgery patients should

either

(i) have sufficient prior experience in caring for surgical patients as to be familiar with the nature and extent of the particular procedures which have been carried out on these patients, to be aware of known complications which can arise from these

procedures and how to recognise them, and to have knowledge of and a clear understanding of what action to take and how to implement all necessary procedures and protocols should such complications arise;
or alternatively

(ii) in the case of junior medical staff recruited without such prior experience and who will be required to provide out of hours medical care for such patients as part of their duties, they should be required to undergo a structured and supervised programme of induction on the nature and extent of the particular procedures which have been carried out on these patients, to be made aware of known complications which can arise from these procedures and how to recognise them, and to be given knowledge of and a clear understanding of what action to take and how to implement all necessary procedures and protocols should such complications arise. Such medical staff should not be given sole unsupervised responsibility for the out of hours medical care of such patients for any period until they have completed such an induction programme;

3. That a system should be put in place at the Hospital whereby there are both middle and senior grade medical staff on site out of hours on evenings and week-ends providing medical cover for Ward 6; that a clear protocol should be established of the circumstances in which nurses should contact either the junior urology house officer, or such middle and senior grade staff or the consultant on call in the first instance when seeking review of a patient; and that steps should be taken to ensure that any such protocol is made known to all individual nursing and medical staff who will be responsible for the care of patients on the breast unit out of hours at any time.

4. That a consistent and uniform system of record keeping should be adopted for nursing staff who care for breast surgery patients in the Hospital and that there should be regular inspection and audit of the records of individual patients to ensure that the accuracy and uniformity of the records are maintained.

5. That patients who have undergone breast surgery in the Hospital should receive their post operative care in a surgical ward for breast patients only.

Conclusion

In the report which Professor Thompson prepared for the Crown (Crown production 6), he concludes as follows:-

“ There are components of Mrs Wightman’s care, particularly preoperatively, which show good medical practice. However, aspects of her peri-operative care, in particular the recognition and treatment of post operative haemorrhage, do not meet an acceptable standard of medical care, medical treatment or medical action that one would expect for a patient who had undergone major surgery.”

In the report which Elizabeth McLatchie prepared for the Crown (Crown production 6), she concluded that in her opinion “ the persistent tachycardia, hypotension, anuria, large volume wound drainage and dizziness are all clear signs that this patient was bleeding.”

I consider that the evidence which has been led in this inquiry amply supports those views. The death of Mrs Wightman was entirely preventable. It was the evidence of

Professor Thompson that had she not died she could have looked forward to at least an 82% chance of surviving for 10 years after her surgery. Her death has been a tragedy for her family who attended throughout the inquiry and who listened with quiet dignity to evidence about Mrs Wightman's last hours which at times was very harrowing for them. It is to be hoped that this inquiry has been able to provide some insight as to how the death occurred and has assisted in revealing whatever is possible to be learned from it so that the risk of a death occurring in similar circumstances in the future will be avoided.