BRITISH COLUMBIA

May 15, 2002

ORCS: 81000-04

Ms. Catherine Winckler
1237 Howe Street
Vancouver, BC
V6Z 1R3

Dear Ms. Winckler:

SUBJECT: Coroner's Inquiry into the death of
WINCKLER, Esther Elsa
BCCS Case File 2000-230-0114

Thank you for your request for documentation concerning the death of your mother, Esther Elsa Winckler.

As per your request I have enclosed a copy of the Judgement of Inquiry. I trust this report will provide you with the information you require.

If you have any questions or concerns do not hesitate to contact my office at 660-7745.

Yours truly,

M Salas

Maria Salas
Office of the Chief Coroner

/ms

Enclosure

G:\Routine Requests\Winckler1.doc

Ministry of Public Safety and Solicitor General
Policing and Community Safety Branch
BC Coroners Service
Office of the Chief Coroner
Metrotower II
Suite 2035 – 4720 Kingsway
Burnaby, BC V5H 4N2
Phone: 604 660-7745
Facsimile: 604 660-7766

BRITISH COLUMBIA

Ministry of Attorney General
BC Coroners Service

JUDGEMENT OF INQUIRY
INTO THE DEATH OF

Case No.: 2000:230:0114
Police File: N/A
Police Department: N/A

WINCKLER	ESTHER ELSA
SURNAME	GIVEN NAMES

OF

LINDELL BEACH
TOWNSHIP

I, Margaret Turner, a Coroner in the Province of British Columbia, have inquired into the death of the above named, which was waived to me on the 19th day of March, 2001, and as a result of such inquiry have determined the following facts:

Gender:	☐ MALE ☒ FEMALE	Native:	☐ YES ☒ NO
Age:	77 years	Date of Birth:	17 NOVEMBER, 1922
Premise/Place of Death:	CHILLIWACK GENERAL HOSPITAL, CHILLIWACK	Estimated Date of Death:	5 MARCH, 2000
Township of Injury/Illness:	CHILLIWACK	Estimated Time of Death:	0300 HOURS
Injury/Illness Premise:	HOSPITAL	Date and Time of Injury:	21 FEBRUARY 2000
Identification Method:	☒ VISUAL: FAMILY MEMBER	☐ Other:	
Body Released to:	FIRST MEMORIAL FUNERAL SERVICES	Date:	7 MARCH, 2000
POST MORTEM EXAMINATION:	☒ FULL ☐ EXTERNAL ☐ NONE	Date:	7 MARCH, 2000
Conducted by:	CHILLIWACK GENERAL HOSPITAL		
TOXICOLOGY EXAMINATION:	☒ YES ☐ NO	Date:	22 MARCH, 2000
Conducted by:	PROVINCIAL TOXICOLOGY CENTRE		
Toxicology Findings:	Blood: Digoxin - 1.1 nmol/L Vitreous Fluid: Digoxin - Less than 0.3 nmol/L		

MEDICAL CAUSE OF DEATH

(1) Immediate Cause of Death: a) Ischemia and Infarction of the bowel and brain

DUE TO OR AS A CONSEQUENCE OF

Antecedent Cause if any: b) Prolonged postoperative oxygen de-saturation and hypotension

DUE TO OR AS A CONSEQUENCE OF

Giving rise to the immediate cause (a) above, stating underlying cause last. c)

(2) Other Significant Conditions Contributing to Death:

BY WHAT MEANS: This woman died from complications she experienced following surgery.

CLASSIFICATION OF THE EVENT: ☒ ACCIDENTAL ☐ HOMICIDE ☐ NATURAL ☐ SUICIDE ☐ UNDETERMINED

Date Signed: 6 May 2002

M. Turner

Margaret Turner, Coroner

730	730	800	703	719	

INTRODUCTION

On March 6, 2000, the Fraser Valley Coroners Office was notified of the death of Esther Elsa Winckler. Ms. Winckler had been admitted to Chilliwack General Hospital on February 20, 2000 for elective surgery. Following surgery, Ms. Winckler's condition deteriorated and despite treatment she died on March 5, 2000 at 0300 hours.

POSTMORTEM EXAMINATION AND TOXICOLOGY

On March 7, 2000, a postmortem examination was conducted at Chilliwack General Hospital. The results of this examination included: ischemia/infarction of the bowel and brain; fractured left 5th, 6th, and 7th ribs; recent closed head injury; and an incidental finding of esophageal invasive well differentiated squamous cell carcinoma. Toxicology analysis revealed the presence of digoxin. The cause of death was determined to be due to the ischemia and infarction of the bowel and brain due to prolonged postoperative oxygen de-saturation and hypotension.

SUMMARY OF FACTS:

Ms Esther Winckler had a medical history that included right lung cancer; asthma; chronic bronchitis; chronic obstructive lung disease; and hypertension. She had been a smoker for 40 years and stopped in 1986. Her past surgeries included hemorrhoidectomy in 1979; right pneumonectomy (removal of lung) in 1986; and back surgery in 1994. She fractured her right hip in 1995 which healed uneventfully.

In recent years Ms Winckler experienced on going left hip and knee pain which restricted her ability to walk. In October of 1998 x-rays revealed severe osteoarthritic changes in the left hip and knee. Ms Winckler was assessed by an orthopedic surgeon at that time and he informed her of the available surgical options and the risks and benefits of orthopedic surgery. Ms Winckler agreed to have surgery. The orthopedic surgeon thought it would be best to proceed surgically first on the affected hip and at a later time on the knee.

Arrangements were made for Ms Winckler to have left hip surgery performed on February 21, 2000 at Chilliwack General Hospital (CGH). On February 2, 2000 a preoperative assessment was performed at CGH and included: anaesthesia questionnaire, physical assessment, ECG, blood work and x-rays of the left hip and chest. This consult concluded that Ms. Winckler was optimized for surgery and that this anesthetist would be "extremely hesitant" to give her a general anesthetic. He concluded that the best form of anesthesia for her would be a spinal anesthetic. He documented that this was discussed with Ms. Winckler and that she agreed to this method.

On February 20, 2000 Ms Winckler was admitted to CGH in preparation for surgery that was scheduled to take place the following morning. Diagnostics to assess respiratory function were performed and all were within normal ranges. That evening a preoperative anaesthetic assessment was conducted by the anesthetist who was going to administer the anaesthesia (This was a different anaesthetist than the one who conducted the assessment on February 2, 2000). Ms Winckler was classified as ASA III, which indicated that she has severe systemic disease limiting activity but not incapacitating. There was no documentation in the patient record to indicate what type of anaesthetic was discussed. During this investigation the anaesthetist stated that he discussed the type of anaesthetic with the patient and that she had expressed that she preferred to be put to sleep. A family member stated that Ms. Winckler had phoned on the evening of February 20, following her meeting with the anaesthetist and left a voice mail stating that she did not want a general anaesthetic. The family member stated that Ms. Winckler sounded upset on the phone.

The anesthetist stated that he was aware of the conclusions of the assessment done on February 2 but had made a decision, based on his assessment, to administer a general anesthetic and to insert an epidural cathetor for pain control. He explained that he chose a general anaesthetic because it was the best means of protecting the patient's airway and monitoring oxygenation and respiratory status.

On the morning of February 21, 2000 Ms Winckler was transported to the operating room (OR) and epidural and general anaesthetic induction were commenced by the anaesthetist. A left hybrid total hip replacement was

performed by the orthopedic surgeon. Ms. Winckler's overall condition remained stable throughout the procedure. The surgery was completed at 1015 hours. Total intake during this procedure was 2750 cc and total output was estimated at 800cc leaving Ms. Winckler with a positive fluid balance of approximately 2000cc.

At 1018 hours Ms Winckler was transported to the Post-Anaesthetic Care Unit (PACU). Her blood pressure on admission was documented at approximately 118/64. At approximately 1030 hours her blood pressure was noted to be 108/58. A chest x-ray done at 1040 hours revealed evidence of interstitial edema, fluid in the lungs. There is nothing in the available documentation that indicates if the anaesthetist was aware of this finding. At 1050 hours nursing documented that Ms. Winckler was restless and stated she wasn't feeling well. Her blood pressure was documented to be 96/58 (low) and her oxygen saturation was 96% (normal >91%). The anaesthetist was notified of the low blood pressure and he ordered that she be given some ventolin (bronchodilator). At 1055 hours the anaesthetist assessed Ms. Winckler and ordered that she be given a bolus (all at once) of 500 cc of IV fluid. Although this bolus was documented in the nurses progress notes as being ordered, it is not clear if it was given. It was not included in the total IV intake for the time that Ms. Winckler was in the PACU. There was no change in her blood pressure following the bolus being ordered. An electrocardiogram (ECG) was done some time before 1140 hours (unable to read the time on copy provided). This revealed a normal sinus rhythm 95-100/minute with non-specific ST segment depression (can be due to many problems including cardiac problems, drugs or decreased potassium level). At 1230 hours the anaesthetist ordered another 250cc of IV fluid to be given over 10 minutes. From the available documentation it is not known if this bolus was given.

At 1410 hours bloodwork results revealed that Ms. Winckler's potassium level was 2.9 mmol/L (low) and she was given potassium via her IV fluids. At 1430 hours a persistent cough (can be sign of fluid in lungs) was noted and her oxygen saturation dropped to 87% (low). Oxygen was administered at 8 liters/minute. Ms Winckler received bronchodilators and anti-nausea medication while in PACU. The epidural infused at 8cc/hour. Total documented fluid intake while in the PACU was 1275 cc, however with the addition of the bolus IV fluids this total would be 2025cc. Total output from all sources was 1010 cc. This results in a

potential positive fluid balance of over 3000cc.

At 1455 hours Ms. Winckler's oxygen saturation remained low at 87%. At 1500 hours Ms Winckler was transported back to the ward. At 1530 hours, Ms. Winckler's oxygen saturation was documented as 88%. There is no indication in the available documentation that a physician was aware of these findings. At 1715 hours Ms Winckler's pulse rate increased to 120/minute and was noted to be irregular (consistent with atrial fibrillation, an arrhythmia). Respiratory congestion was noted (can be a sign of fluid in the lung). At 1745 hours bloodwork results revealed that her potassium level remained low at 3.1mmol/L. At 1955 hours Ms. Winckler's oxygen saturation remained at low at 87 %. Her chest sounds revealed crackles and she was still coughing. (a sign consistent with fluid in the lungs). A repeat ECG revealed atrial fibrillation with a rate of 155/minute. A resident physician and internist attended. Medication was given to control her heart rate. Her oxygen saturation remained low at 88 %. A decision was made to transfer Ms. Winckler to the Intensive Care Unit.

At 2230 hours Ms. Winckler complained of feeling weak and not being able to get her breath but denied chest pain. At 2305 hours her B/P fell to 80/50 and at 2310 hours it was recorded as 73/40 (critically low). A bolus of 500 cc of IV N/S was administered followed by digoxin (to control atrial fibrillation). Cardiac specific enzymes (assesses for myocardial infarction, MI) were drawn and were slightly elevated but not diagnostic for MI. Over the course of the next several hours her oxygen saturation remained low, even when 100 % oxygen was administered.

At 0055 hours on February 22, Ms. Winckler was noted to be confused. At 0210 hours she was reported to be restless and at 0225 hours she was obtunded. At 0324 hours Ms. Winckler was intubated (tube placed down her trachea) and attached to a ventilator (machine that provides ventilation). Following the intubation Ms. Winckler's oxygen saturation improved to 91 – 98 % . Documentation by nursing states that Ms. Winckler was cardioverted at 0327 hours but it does not indicate why this was done.

Severe hypotension continued until 0510 hours, in spite of treatment which included stopping the epidural drip and administration of continuous IV drips of inotropic agents. At 0428 hours Ms. Winckler was given 40 mg of lasix (promotes urine output) but there is no indication why this was given. After this point in time and for the remainder of the day, Ms Winckler's condition remained relatively stable. Blood pressure, pulse and heart rate were essentially normal, with the exception of short bursts of atrial fibrillation accompanied by a decrease in blood pressure. However, continuous IV inotropic support in the form of continuous IV drips (dopamine & epinephrine) were required to keep the patient's blood pressure within normal range. A continuous dysrhythmic IV drip (Pronestyl) was also required to control the patient's heart rate. At 0745 hours Ms. Winckler was given 120 mg of lasix to promote urine output.

On February 23, 2000 O2 saturation ranged between 91 – 98 %. Inotropic and dysrhythmic IV medications were still required to maintain homeostasis. Ms Winckler was started back on her routine medications. She was also started on amioderone (dysrhythmic) and a bowel protocol. The physicians who were caring for Ms Winckler suspected that she had sustained a recent myocardial infarction (M.I).

On February 24th Ms. Winckler came off of the ventilator, the inotropic IV drips were stopped, oral intake was commenced and the epidural drip was restarted for better pain control. On February 25th the documentation states that Ms. Winckler had a 'facial droop' (sign of partial nerve damage, commonly seen with brain injury) and was confused and agitated. On February 27th the pronestyl IV drip was stopped and the epidural catheter was removed. From February 24th to 28th, Ms Winckler's overall condition improved. However, she did experience episodes of agitation, confusion and abdominal discomfort and attempted to climb out of bed on a few occasions. On February 28th Ms Winckler was moved out of ICU to Nursing Unit 3 (NU3).

On March 1, Ms. Winckler was transferred to the activation ward at Chilliwack General Hospital. From February 28th to March 2nd, there was slow progress in Ms Winckler's condition. There was no documentation in the patient record concerning a bowel movement. Bowel protocol was continued which consisted of oral stool softeners and laxatives.

On the morning of March 3, 2000 Ms Winckler sustained a fall and was found lying beside her bed. She complained of back pain that subsided a short while later.

At 0130 hours on March 4th Ms Winckler received ativan 1 mg (a sedative) which was an order obtained by the nursing staff over the telephone by the on-call physician. At 0530 hours Ms Winckler was found lying on her side beside her bed. Ms Winckler was not responding to verbal stimuli, her body was very stiff and she was noted to have very jerky hand movements (a signs consistent with seizure activity) It was documented that her pupils were dilated and non-reactive (a sign of serious head injury). Within 15 minutes her condition improved although she seemed vague and her speech was slurred. Documentation still did not indicate that the patient had experienced a bowel movement. A physician examined Ms. Winckler and ordered blood work and an abdominal x-ray.

At 1200 hours the family visited and noted clear yellow fluid coming from Ms. Winckler's nose and bruising to the right side of her head . In addition the family member stated that there was a bruise on her cheek with dried blood on it. The nursing staff and the family noted that Ms. Winckler was acting inappropriately, removing clothing, climbing on another patient and tearing the curtains down. The family was concerned as this behaviour was a change and on the their request, the physician was notified by telephone and he had a conversation with the family member.

At 1625 hours the physician assessed Ms. Winckler and noted that she was not doing well. She was confused and continued to have abdominal pain. The physician discussed cardiac arrest status with the family and a 'no code' order was written (no resuscitation efforts will be initiated if the patient's heart or breathing stops). The physician consulted with a surgeon and it was decided that IV fluids and broad IV antibiotics be administered, but that abdominal surgery not be performed, at that time, given the patient's history and current instability. Throughout that evening and the early morning hours of March 5, 2000 Ms Winckler experienced increased abdominal pain and her condition did not improve. Ms Esther Winckler was pronounced dead at 0300 hours.

FINDINGS

Esther Elsa Winckler died on March 5, 2000 from ischemia and infarction of the bowel and brain due to prolonged postoperative oxygen de-saturation and hypotension. From my review of the circumstances leading up to her death, I found the following issues to be significant:

1. No documentation on the available health records related to the type of anaesthesia discussed or consented to during the pre-operative assessments.
2. Postoperatively congestive heart failure was not identified and/or not treated promptly given that Ms. Winckler exhibited signs and symptoms consistent with this condition.
3. Medical management of a patient experiencing critically low oxygen levels and prolonged hypotension.
4. Documentation on the health records at Chilliwack General Hospital.
5. Transfer of an unstable postoperative patient to an understaffed activation ward.
6. No protocol for assessment of patients receiving analgesics and sedation.
7. Providing for the nutritional needs of a patient recovering from surgery
8. Recognition, documenting and reporting of bowel movements, or lack of bowel movements.
9. Recognition, and reporting of, abnormal signs indicative of a head injury.
10. Overall management of an elderly patient in Chilliwack General Hospital.

1) **No documentation on the available health records related to the type of anaesthesia discussed or consented to during the pre-operative assessments.**

Anaesthesia is a vital part of any operation or procedure. Depending on the health of the patient and the anaesthetic being used, it can put the patient at a greater risk for complications than the surgery itself. The anaesthetist uses specialized knowledge and experience to ensure that the patient is put at the least risk possible while providing optimum anaesthesia for the procedure. A preoperative assessment is done to obtain valuable

information regarding the patient's health status, and to discuss with the patient the types of anaesthesia to be used and the risks involved. This provides the anaesthetist with baseline data to make comparisons during the operative and postoperative period. In addition it provides the patient with the information needed to provide informed consent for the anaesthesia.

Ms. Winckler attended a preoperative assessment clinic on February 2, 2000. A consultation report documented that Ms. Winckler was optimized for surgery and that this anaesthetist would be extremely hesitant to give her a general anesthetic and recommended a spinal anesthesia. The anaesthetist who conducted this assessment was not the same one who ended up providing Ms. Winckler's anaesthesia on February 21, 2000.

On the evening February 20, 2000, the anaesthetist scheduled to provide Ms. Winckler's anaesthesia conducted a preoperative assessment. This consisted of an overview of present history, vital signs, current medication use and physical assessment. The available documentation indicates that the anaesthetist categorized her health status as ASA III (severe systemic disease, limiting activity, but not incapacitating.). He documents her problems as increased blood pressure, COPD (chronic obstructive pulmonary disease), and one lung. There is no documentation related to discussion of type of anaesthetic, general vs. spinal, or the risks involved.

During the course of this investigation the anaesthetist explained that he chose to administer two types of anaesthetic: general and epidural. He stated that after reviewing all the documentation available and considering her history and the operation to be conducted, he made a decision to use a general anaesthetic because it was the best means of protecting the patient's airway and monitoring oxygenation and respiratory status. He pointed out that the positioning for hip surgery makes it very difficult to insert an ET (endotracheal tube) if intubation became necessary. The anaesthetist added that he remembers Ms. Winckler was very anxious about being awake during the surgery and that it was her wish to be put to sleep during the procedure.

According to a family member, Ms. Winckler phoned her on the evening of February 20, after the assessment by the anaesthetist. She left a message on the answering machine stating that she was very upset that the

anaesthetist was going to use a general anaesthestic. The family member stated that Ms. Winckler had always been against a general given a previous experience when she became unstable during a general anaesthetic. The family member stated that the only reason Ms. Winckler consented to the surgery was the fact that she would not have a general anaesthetic.

The conversation between Ms. Winckler and the anaesthetist on the evening of February 20, 2000 is not documented and therefore its content remains unknown. The anesthetist was aware of the previous preoperative consult and made a decision, based on his expertise to proceed in a different manner. The reasons for this decision are not documented . The 'Guidelines to the Practice of Anaesthesia' recommended by the Canadian Anaesthetists' Society states that the details of the preoperative assessment should be documented on the patient's chart. If the anaesthetist had documented his decision regarding the type of anaesthesia, together with the conversation with Ms. Winckler, then the confusion over whether Ms. Winckler had given her informed consent for a general anaesthetic may have been clearer.

A related issue is the one of a signed consent. Patients or their designates must give informed consent before any operation is performed on them. 'Informed' consent means that the patient is aware of the procedure being done, and the inherent risks involved. A consent form entitled "Consent To Operation or Procedure" was signed by Ms. Winckler, the surgeon and a witness. This form has an area to fill in the type of operation or procedure being conducted. In this case that section read 'Left total hip replacement'. In addition there is a consultation report in the chart by the surgeon that clearly outlines the conversation with Ms. Winckler regarding the risks of this procedure. This is a good indicator that Ms. Winckler was informed about the operation being conducted.

The next section of the consent form signed by Ms. Winckler states the following:

"Consent is also given to:

- perform such additional or alternative operations and/or procedures as may become necessary during the course of the above operation, to preserve life or limb,

- utilize other hospital medical staff or employees as required, and
- administer anaesthetic."

This consent form has no place to indicate what type of anaesthesia the patient is consenting to. In addition this form is not dated, therefore it is unknown whether Ms. Winckler signed this before or after the preoperative assessment on February 20, 2000. If there was a section on the consent that included the type of anaesthesia (i.e. spinal vs general) then what the patient is consenting to would be clearer.

2) Postoperative congestive heart failure was not identified and/or not treated promptly given that Ms. Winckler exhibited signs and symptoms consistent with this condition.

Identifying the cause of a patient's deterioration can be a difficult process. The physician must carefully consider all the possible diagnoses that could result in the signs and symptoms the patient is exhibiting. In a medical emergency, many diagnoses result in multi-system failure which further complicates this process. For example the primary cause for a drop in blood pressure could be due to cardiac, respiratory, neural or vascular dysfunction. Identifying which system(s) is the primary cause requires a thorough assessment of all the systems. Often this is being done at the same time emergency treatment is being given for critical conditions.

Congestive heart failure (CHF) occurs when the heart is unable to adequately circulate the blood volume. The left side of the heart cannot handle the volume coming into it and hence this extra fluid backs up into the lungs. This fluid build up has a negative effect on the patient's oxygen saturation. The early signs and symptoms of CHF are consistent with those related to decreased oxygen and include restlessness, anxiousness, feeling uneasy, tachycardia (increased heart rate). As the failure progresses the patient may develop shortness of breath, congestion, wheezing, sweating and atrial fibrillation. Although initially there may be an increase in blood pressure, if left untreated a drop in blood pressure may occur.

Soon after Ms.Winckler was transferred to the PACU, she was restless and stating that she 'didn't feel good'. Her blood pressure was low but her oxygen saturation was within normal range. A chest x-ray was done and

according to the written report, this showed interstitial edema, fluid in Ms. Winckler's lungs. Pulmonary edema is consistent with congestive heart failure. There is no documentation to indicate that the anaesthetist was aware of this finding. Approximately 3 hours later Ms. Winckler's oxygen saturation fell to 88%, a critically low value. The physician was made aware and her oxygen level was increased. On arrival to the ward, 30 minutes later, Ms. Winkler's oxygen saturation was 88% and she had developed a congested sounding cough, a sign consistent with fluid in the lungs. There is no indication in the available documentation that this finding was reported to the physician. Over the next few hours, Ms. Winckler continues to exhibit more signs and symptoms consistent with congestive heart failure, including tachycardia, atrial fibrillation, shortness of breath, and decreased blood pressure. The treatment she received included fluid administration, medication for the atrial fibrillation and treatment aimed at increasing her blood pressure. Treatment that would decrease the fluid in her lungs was not implemented until 0428 hours on February 22. By this time Ms. Winckler's oxygen saturation had been at a critical level for more than 12 hours. If the presence of congestive heart failure had been identified in the PACU (at the onset of the signs and symptoms suggesting an oxygen delivery problem) and treatment had been aimed directly at decreasing the pulmonary edema, then it is possible that Ms. Winckler may not have experienced the deterioration and complications that led to her death.

3) Medical management of a patient experiencing critically low oxygen levels and prolonged hypotension.

Prolonged oxygen de-saturation (oxygen saturation <91%) and hypotension were found to be contributing factors in Ms. Winckler's cause of death. Oxygen is a vital element required for cell metabolization. A decreased oxygen level, or a lack of oxygen, affects the functioning of all the tissues in the body. If left untreated, or not treated appropriately, an inadequate amount of oxygen can be fatal.

One of the effects that a decreased oxygen level can have is vasoconstriction, a narrowing of the blood vessels. This is the body's attempt at shunting oxygen away from the parts of the body that are not vital to its survival. For example, when a person has a lack of oxygen, they will often have cold hands and feet. These symptoms are a result of decreased blood flow to the extremities due to vasoconstriction. Prolonged vasoconstriction can

lead to ischemia, a deficiency of blood in an area. This, in turn, can lead to an infarct, a localized area of tissue that has died due to ischemia.

Vasoconstriction can also be caused by several of the medications used in the critical care setting. The medications epinephrine and dopamine (at doses above 10 ugm/kg/min) have potentially powerful vasoconstriction effects. Prolonged, or inappropriate use of these medications can also lead to ischemia and possibly infarction of tissues.

Another effect of prolonged decreased oxygen is hypotension, or low blood pressure. Prolonged hypotension results in decreased blood supply to the tissues. This, too, can result in localized areas of ischemia and infarction.

The postmortem examination on Ms. Winckler revealed areas of ischemia and infarction in the colon and brain. This investigation revealed that these findings are due to the prolonged oxygen de-saturation and hypotension experienced in the postoperative period. In the immediate postoperative period, Ms. Winckler sustained a low oxygen saturation (below 91%) for greater than 12 hours. In addition to this, she had sustained a significantly low blood pressure for approximately 7 hours. She was then placed on relatively high doses of epinephrine and dopamine for approximately 48 hours. On February 25 and 26 Ms. Winckler exhibits signs and symptoms of having experienced a cerebral event, possibly due to ischemia and/or infarction in the brain. In addition she experienced abdominal discomfort, documented as having a distended abdomen and had no bowel movement. Although this could be due to constipation it is also possible that there was ischemia and/or infarction in her bowel at that time.

4) Documentation on the health records at Chilliwack General Hospital

Communication is a vital process within the health care system and a particularly complex process within an institution such as a hospital. Although communication processes are set up at Chilliwack General Hospital to ensure that information flows appropriately, there were many times during Ms. Winckler's hospitalization that

the written documentation was inaccurate and/or incomplete. These were done by both nursing and medical staff.

An example of this was the fluid balance record in the PACU. On February 21, 2000 the anaesthetist had ordered two boluses of IV fluid, one at 1055 hours and the second at 1230 hours. Although the first bolus is charted in the focus charting, it was not included in the fluid balance section of the Post Anaesthetic Care Unit Record. The second bolus was not charted in either section, however it was ticked off as being given on the physician's orders. The result of this was that the fluid balance, a vital part of postoperative assessments, was out by at least 750 cc of fluid. The fluid balance is used to assess if a patient is producing enough urine, if their systems are functioning well and for assessing for fluid overload. Fluid overload happens when a persons body is unable to cope with the increased amount of fluid administered to them and is fairly common following surgery. One of the signs of fluid overload is pulmonary edema, or congestive heart failure.
There are many entries both in physician and nursing documentation that are not dated. There are dates missing on clinical records, nursing notes, physician progress notes and consent forms. There are sporadic entries on the Record of Bowel Movements section of the Bowel Care Record and the Pain section of the PRN Medication Record. Although these may seem like minor errors, they are significant because they can lead to unclear communication that could potentially lead to errors.

5) Transfer of an unstable postoperative patient to an understaffed activation ward.

Ms. Winckler was transferred from a surgical ward to an activation ward on March 1, 2000. Activation wards are units that specialize in rehabilitation of patients whose physical ability has been compromised either due to the health concern that brought them to the hospital or during the course of recovery. Thorough assessments are done on patients referred to this unit to decide if they are appropriate candidates for this type of service. One of the common requirements is that the patient has recovered from the acute stage of their health concern and the medical care required is close to what would be needed on discharge. Generally the number of patients a nurse would have on an activation ward is greater than that on an acute care ward.

Ms. Winckler was transferred to the activation ward two days after being transferred from the ICU. Discussions with hospital personnel has identified that transferring a patient to such a unit so soon after recovering from an eventful, serious course following surgery was questionable. Staff at the hospital stated that this was done due to a shortage of nurses on the surgical unit. It is possible that if Ms. Winckler had remained on the surgical ward, the staff there may have identified her deterioration earlier due to the lower nurse/patient ratio combined with the surgical nurses experience with common postoperative problems.

6) No protocol used for assessment of patients receiving analgesics.

Pain management is a complex part of providing care to patients. Pain has both sensory and behavioural components that are influenced by social and personal factors. This can make trying to define pain and hence manage it, very difficult. In addition, there are many myths and fears related to pain that influence the way it is managed. Over the past twenty years research has dramatically changed the way pain is managed. Theory, protocols, assessment tools, and technology have been developed that afford health care providers the ability to assist patients to better manage their pain.

Today many hospitals in British Columbia use protocols for managing patients receiving pain medication. These protocols include regular documentation of respiratory rate, heart rate, and blood pressure, together with sedation and analgesic scales for assessment.

From the available documentation, it does not appear that any pain protocol was used to assist in managing Ms. Winckler's comfort. There is a section on both the Neurovascular Assessment Record and the Epidural Record for documenting the pain level using a scale of 1-5, however there is no entry on the Neurovasuclar Record and only two entries on the Epidural Record. One of the basic principles to provide consistency in assessment for pain is to have a standard method that is used at regular, frequent intervals.

Pain that is inappropriately managed can affect the patient's condition, behaviour, mental state, and recovery time. It is possible that poor pain management contributed to some of Ms. Winckler's restlessness and

confusion that led to her falls in the last few days of her life.

7) Providing for the nutritional needs of a patient recovering from surgery

Adequate nutrition is a vital component in the health care environment. There are times when providing nutrition is difficult or even contraindicated. In the critical care setting such as an ICU, most patients can be maintained without nutritional support for a few days particularly when they are in an obtunded state. However, one must consider each patient's caloric needs, health status, illness or trauma in deciding if nutritional support is necessary. Once a patient is through the critical stage then nutritional support becomes vital.

Ms. Winckler had a diet ordered for her on February 21. It does not appear that she received anything before her condition became critical on February 22. According to the available documentation Ms. Winckler had sips of fluid on February 24, ate poorly on February 25, and ate with assistance on February 26. There is no notation regarding her diet on February 27. In the morning of February 28 another diet order was written. The notation on the order states that a requisition was completed for Ms. Winckler to receive this diet. There is no documentation on the remainder of the focus notes that reflects that Ms. Winckler was receiving adequate nutrition. It is possible that, if her diet was not adequate for her needs, that this contributed to her overall health status by decreasing her strength, impairing her immune system, impairing her respiratory drive, impairing her mental functioning and delaying the healing process.

8) Recognition, documenting and reporting bowel movements, or lack of bowel movements.

Bowel movements are an important function to assess for in all hospitalized patients. This function is affected by medications, conditions, and procedures common to most patients. Constipation is a common symptom that has many causes. It can be due to something simple like inadequate diet, or it can be a symptom of something more serious like a bowel obstruction. Bowel function is commonly assessed for on a regular basis on all postoperative patients. The return of bowel sounds and flatus is an indicator that the intestines are functioning

properly. Bowel function should return by the second or third postoperative day given the patient is eating properly.

According to the available documentation, Ms. Winckler had both bowel sounds and flatus on the evening of February 21. From February 22 to the 28th, Ms. Winckler was being cared for in the Intensive Care Unit. During this time she had bowel sounds but it is possible that she was not expected to have a bowel movement due to her limited dietary intake. From February 28th to March 5 there is no documentation related to diet. It is not known if she was eating an adequate enough diet to promote a bowel movement.

On February 27 she was placed on a bowel protocol. This protocol includes orders for medication and supplements for the promoting bowel movements. There is a Bowel Care Record, which allows for the documentation of the medications, supplements and assessments. The protocol allows for additional medications to be given if there is no bowel movement after two days. None of these medications are documented as been administered to Ms. Winckler despite the fact that she did not have a bowel movement for the 6 days that the protocol was in place. Of the more than 36 boxes that were to be filled out in the section to record bowel movements, only 7 were completed.

Although her lack of bowel movements may not have been significant in Ms. Winckler's cause of death, it is possible that had the staff been following the bowel protocol appropriately, they may have identified the problem in her gastrointestinal tract sooner.

9) Recognition, and reporting of, abnormal signs indicative of a head injury.

Thorough assessment of a patient following a fall is very important. The goal of this assessment is to determine if a patient is injured due to the fall and, if necessary, to establish if there was a pre-existing event that led to the fall. Such an assessment should consist of a basic head to toe physical assessment as well as complete neuro-vital signs (including pulse, respirations, blood pressure, pupils, muscle strength and symmetry). Any abnormal signs, particularly if they indicate injury, should be reported to the physician.

On March 4th Ms. Winckler sustained an unwitnessed fall. According to the available documentation, a physical assessment and neuro-vital signs were completed. The documented abnormal signs that she exhibited at this time included:

1. Pupils dilated and non-reactive
2. Unresponsive to verbal stimuli
3. Stiff body
4. Jerky hand movements
5. Slurred speech
6. Vague affect
7. Bruising to the right side of her head

All these signs are consistent with a serious head injury with possible seizure activity (seizure activity is a common finding following a head injury). (Postmortem examination revealed a recent closed head injury consistent with the area of her head that had been injured in the fall.) Documentation states that Ms. Winckler's condition improved within 15 minutes in that her pupils were reactive, she was responding to questions well and she was moving all her limbs, however, her speech remained slurred. Despite the signs and symptoms of possible serious head injury there were no diagnostics done to assess this further. These diagnostics allow for prompt treatment of a potentially fatal injury.

10) Overall management of an elderly patient in Chilliwack General Hospital.

The physical changes consistent with aging become very significant in a health care environment. Providing health care to geriatric patients requires a special body of knowledge. Although all health care providers have a knowledge base in this area, the latest advances are not consistently incorporated into all the hospital settings.

Throughout Ms. Winckler's hospital stay there were several elements of the health care provided to her that illustrated a gap between the standards being recommended in the field of geriatrics and those in use at Chilliwack General Hospital. These areas include:

1. Pain Management
2. Effects of surgery on the geriatric patient
3. Restraints
4. Sedation
5. Nutrition and Elimination

All of these elements contributed to the difficulties that arose in Ms. Winckler's hospital stay. For example, Ms. Winckler sustained two falls, one on March 3rd and a second on March 4th. At the time of these falls she was experiencing periods of confusion and agitation. Although the source of the confusion and agitation is not known, these are common for geriatric patients. Current literature suggests that some of the patient care practices related to the above have actually exacerbated these conditions. Higher standards in these areas would have provided Ms. Winckler with the best opportunity for recovery.

CONCLUSION

Esther Elsa Winckler died from complications she experienced following surgery on her hip. This investigation revealed that her state of prolonged oxygen de-saturation and hypotension were significant factors leading to her death. I, therefore, classify this death as accidental and put the recommendations that follow forward to the Chief Coroner of British Columbia for dissemination.

M. Turner

Margaret Turner
Coroner

RECOMMENDATIONS

To: Department of Anaesthesia & PACU
Chilliwack General Hospital
45600 Menholm Rd,
Chilliwack, BC
V2P1P7

1. That this case be reviewed for educational purposes with particular attention to:

    a) The importance of documenting pre-operative assessments
    b) Signs and symptoms of congestive heart failure
    c) Oxygen de-saturation
    d) The importance of complete and accurate documentation

To: Patient Care Services
Chilliwack General Hospital
45600 Menholm Rd,
Chilliwack, BC
V2P1P7

2. That this case be reviewed for educational purposes with particular attention to:

    a) Complete and accurate documentation that meets the standards set out by the RNABC
    b) The importance of reporting abnormal findings
    c) Signs and symptoms of a head injury
    d) Nutritional requirements of a postoperative patient
    e) The importance of a functioning gastrointestinal system
    f) Current pain management theory
    g) Management of post operative confusion in the geriatric patient
    h) The effects of sedation on the geriatric patient
    i) The benefits of non-restrictive and non-chemical restraints
    j) The Regional Falls Prevention Program
    k) Appropriate transfers to an activation unit

3. That Chilliwack General Hospital develop and incorporate care maps/plans related to the care of geriatric patients that include:

   a) Use of restraints
   b) Pain Management
   c) Sedation
   d) Effects of analgesia on the elderly

To: Mona Kines
Vice President of Acute and Strategic Services

4. That Acute and Strategic Services review policies in place at other health care facilities regarding the management of patients receiving analgesics and sedation and develop an appropriate monograph for the Fraser Valley Region.

To: Dr. Rod Underall
Chief of Medical Staff
Fraser Valley Health Region

5. That the current consent forms be reviewed and consider changes that allow for a patient to consent to a particular method of anaesthesia without jeopardizing the ability of the physician to use alternative methods, if necessary during the course of the procedure, to preserve life or limb.

To: Laurel Brunke
Executive Director
RNABC
2855 Arbutus Street
Vancouver, BC

6. That the RNABC consider involvement in offering an educational workshop at Chilliwack General Hospital concerning the following nursing care issues:

   a) The importance of complete and accurate documentation;
   b) Care of the geriatric surgical patient;
   c) The use of restraints and no restraint policies;
   d) The importance of reporting abnormal findings.

To: Dr. T.F. Handley, Registrar
The College of Physicians and Surgeons of BC
1807 West 10th Avenue
Vancouver, BC
V6J 2A9

7. That the College of Physician and Surgeons review this case for educational purposes as deemed appropriate.