

IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2015 4707

FINDING INTO DEATH WITHOUT INQUEST

Form 38 Rule 60(2)

Section 67 of the Coroners Act 2008

I, IAIN TRELOAR WEST, Deputy State Coroner having investigated the death of Lysie Maree EVERETT

without holding an inquest:

find that the identity of the deceased was Lysie Maree EVERETT

born on 5 March 1979

and the death occurred on 15 September 2015

at Swan Hill District Health, 48 Splatt Street Swan Hill, 3585 Victoria

from:

1 (a) COMPLICATIONS OF PNEUMONIA

2 PULMONARY EMPHYSEMA WITH BULLAE FORMATION

Pursuant to section 67(1) of the **Coroners Act 2008**, I make findings with respect to **the following circumstances:**

1. Lysie Everett was a 36-year-old woman who resided in Woorinen. She is survived by her husband, Mr Stuart Everett, mother Ms Pam Borchard and daughter, Kaylee Everett.
2. Ms Everett had a congenital chest cavity abnormality secondary to spinal scoliosis with a history of difficult intubation. She was also asthmatic and had previous presentations to Swan Hill District Health (SHDH). In 2004, she developed Adult Respiratory Distress Syndrome when she required respiratory support in the Bendigo Health Intensive Care Unit. At the time she had a surgical airway created by a tracheostomy on two occasions. Ms Everett also experienced symptoms of anxiety upon presentation to doctors and hospitals.
3. On 14 September 2015 at 4.22am, Ms Everett presented to SHDH's Emergency Department (ED) with a 3 day history of shortness of breath and associated productive cough. On admission, she had significant abnormal vital signs with hypotension, tachycardia, tachypnoea and hypoxia. She was afebrile and conscious and able to talk in full sentences. The ED's Hospital Medical Officer (HMO) reviewed Ms Everett and noted bibasilar coarse lung crepitations with the provisional diagnosis being pneumonia. Ms Everett was provided with salbutamol 5mg and ipratropium bromide 0.5mg nebuliser with 10 litres supplemental oxygen. This resulted in an immediate improvement with her oxygen saturation increasing to 99%.

4. After a delay, an intravenous (IV) bung was inserted at 6.00am (I accept that the delay was in the context of a child presenting in the Emergency Department at 5.20am, dead on arrival). Initial blood tests at the time showed an impairment in renal and liver function and hypokalaemia. The C Reactive Protein marker for infection was raised. A sample of blood was sent for microbiological culture, along with throat swabs for respiratory multiplex Polymerase Chain reaction (PCR). There was no venous blood gas analysis, or lactate performed.
5. There was a record of 1L IV fluid resuscitation administered over 1 hour from 6.40 am, however, it appears Ms Everett declined further IV fluids, along with IV replacement potassium. She consented to oral potassium replacement with Chlorvescent tablets. With the IV bung inserted, hydrocortisone 200mg was administered at 6.00am, along with broad spectrum antibiotics. Oral diazepam 5mg was administered at 8.30am,¹ signed in the once only section of the medication chart. Later, regular diazepam 5mg three times a day was prescribed, along with a daily dose of thiamine 300mg.
6. Ms Everett was reviewed in the morning at 5.45 by Dr Ernan Hession and a management plan was developed prior to her transfer to the ward at 10.45am. She was given another salbutamol/ipratropium bromide nebuliser, along with Chlorvescent potassium tablets and had a chest x ray.
7. At 4.00pm, Ms Everett was reviewed by the ward HMO Dr Nadeeka Ginimilage who noted that despite an explanation on the need for fluid replacement, Ms Everett still refused IV fluids and IV potassium replacement. According to Dr Ginimilage, Ms Everett '*was not dyspnoeic with oxygen, anxiety? Alcohol withdrawal.*' When subsequently asked by VMO Dr Julia Coshan why she had anxiety, Ms Everett admitted to heavy regular alcohol intake and that she had not been able to drink alcohol over the past few days due to feeling unwell. The management plan was to include respiratory support with nasal oxygen, an aim to increase oral fluids, continue oral potassium supplements and monitor and chart fluid balances and alcohol withdrawal symptoms.
8. A review of the chest x-ray showed an absence of frank consolidation in the lungs indicating that Ms Everett could have either typical or atypical pneumonia. On the one hand, the chest x-ray showed patchy, bilateral consolidation in the mid to lower zones. On the other hand, Ms Everett was afebrile and had a normal white cell count and relatively mildly raised C-reaction protein level (47.6 mg/L). Accordingly, both possibilities were covered by prescribed antibiotic therapy (intravenous ceftriaxone and oral doxycycline).
9. The plan documented at 6.15pm included continuing the IV antibiotics, maintaining oxygen saturation at or above 92% and Abdominal Ultrasound was requested. A blood test at 9.10pm indicated some success with Chlorvescent supplements with an increase in potassium. The renal function showed some signs of improvement with oral fluid encouragement.
10. Ms Everett's vital signs were recorded in the ED at 10.45am and then on the ward at 3.45pm and 8.00pm. At 7.30pm, the notes of the evening nurse indicated that she remained anxious and she had difficulty breathing. At 8pm, oxygen saturation was 92% with ongoing low blood pressure and tachypnoea. Both vital signs were within the modified observation range, therefore not prompting a medical review.

¹ The reason for diazepam administration at this time was unclear, however later was administered to counteract alcohol withdrawal symptoms.

11. Overnight, no further observations were recorded despite the night registered nurse (RN) Ms Pollock writing a retrospective recollection indicating she remained at the bedside, in close proximity to Ms Everett. The last contemporaneous record was at 11pm with oxygen saturation at 95% but other vital signs were unrecorded.
12. Retrospective medical notes indicate that Ms Everett was restless and unsettled, removing her oxygen mask and nasal prongs. Her restlessness was managed by the administration of temazepam at 11.15pm and diazepam at 1.00am. The scheduled salbutamol 5mg and ipratropium bromide 0.5mg nebuliser was administered at midnight. RN Pollock recalled that following this nebuliser, supplemental oxygen was increased from 3 to 14 Litres, with oxygen saturations 80-88%.
13. During a period of restlessness, RN Pollock noted Ms Everett's oxygen saturation level dropped to 43 per cent when she removed the oxygen mask. At the request of RN Pollock, the ED HMO Dr Sarwar reviewed Ms Everett at 1.00am, advising a repeat salbutamol 5mg and ipratropium bromide 0.5mg nebuliser which was administered at 2am. Dr Sarwar's retrospective notes indicate Ms Everett was pulling at the oxygen mask, resulting in sub-optimal oxygen saturation levels of around 85 per cent. Ms Everett was able to talk to him and he recalled her indicating that she was feeling better. He left the ward and advised nursing staff to call him if her oxygen saturation levels dropped.
14. RN Pollock recalled that she did not record vital sign observations as continuous pulse oximetry was in place and frequently checked. Due to Ms Everett's restlessness, she recorded some difficulty in keeping the pulse oximetry probe applied to her finger. Generally she described Ms Everett as remaining agitated all night, constantly removing her oxygen mask and later non-rebreathing mask, whilst talking about her breathing difficulties. Around 3am, Ms Everett spilt some juice and the nurse went to get towels and fresh linen. RN Pollock returned at 3.20am and found Ms Everett in a state of collapse. Cardiopulmonary resuscitation (CPR) was commenced and a Medical Emergency Team (MET) call was initiated. Dr Sarwar attended the MET call. There were difficulties in securing an airway with notes indicating '*unsuccessful airway placement.*' A defibrillator was attached, indicating a 'non shockable rhythm.' Ms Everett was in asystole. Adrenaline was administered. Dr Sarwar phoned Dr Julia Coshan and CPR continued for 15 minutes, before Ms Everett was declared deceased at 3.35am. Dr Sarwar made the decision to cease CPR. Although Dr Coshan attended, it is unclear if she was there at the time of CPR cessation or arrived after resuscitation attempts were ceased.

Forensic Pathology Investigation:

15. Forensic Pathologist Dr Jacqueline Lee from the Victorian Institute of Forensic Medicine performed an autopsy on Ms Everett and provided a written report of her findings. She identified pneumonia and a collapsed bleb/bulla of the upper lobe of the left lung. No evidence of acute asthma was seen on histology. The autopsy was negative for pulmonary thromboembolism. An organizing subdural membrane and liver cirrhosis with fatty liver were also seen. The organizing subdural membrane may have reflected prior head injury and did not cause or contribute to the death.
16. Post-mortem microbiology was positive for the yeast *Candida albicans* in the blood and lung swabs. However, the inflammatory reaction within the lungs was more consistent with a bacterial infection. The significance of the *Candida albicans* is uncertain. Toxicological analysis identified diazepam and paracetamol. No alcohol was detected.
17. Review of laboratory results from Swan Hill Health for specimens collected on 14 September 2015 indicated the following: the blood culture had no significant growth; saliva

like sputum grew normal respiratory flora; throat swab was negative for pathogens; respiratory virus PCR detected influenza B virus RNA. Foci of necrotizing bronchiolitis seen in the lungs on histology were consistent with influenza virus infection. The remaining histologic picture in the lungs indicates a bacterial super infection. The bacteria may not have grown in the post mortem culture subsequent to the antibiotic treatment.

18. Dr Lee stated that death was the result of natural causes being respiratory failure in the setting of pneumonia and a ruptured pulmonary bulla. Alcoholics with liver disease are at increased risk of infection. There was no evidence of any injuries which may have caused or contributed to death.

Family Concerns and Health & Medical Review:

19. On 8 December 2015, the Court received a letter of concern from Ms Everett's husband and mother expressing concerns about her medical management at SHDH. They both recalled phone calls from Ms Everett which indicated that she was worried she was not responding to treatment and that hospital staff were disregarding her concerns. Given her history of difficult intubation, the family remarked on the absence of a consultation by Swan Hill Health with Bendigo Hospital. Furthermore, Ms Everett was not an alcoholic, rather they believed staff misinterpreted her symptoms of anxiety, which she experienced whenever admitted to hospital. Lastly, they questioned the administration of diazepam, when she was diagnosed to have pneumonia.
20. As a result of these concerns, I referred the matter to the Coroners Court Health and Medical Investigation Team (HMIT)² for a review. They considered all available medical documentation and provided a written report of their findings.
21. The HMIT stated that community-acquired pneumonia (CAP) is pneumonia in individuals who are not hospitalised, or have been hospitalised for less than 48 hours. It is usually suspected in those presenting with acute respiratory symptoms such as a cough, dyspnoea, sputum production, pleuritic chest pain and fever. It is confirmed by an X-ray of the chest. The usual investigations of CAP include the analysis and culture of blood and sputum samples to identify responsible pathogen(s).
22. The initial ED assessment of Ms Everett appropriately included vital sign monitoring, history taking and an examination. The investigations also appropriately included a chest X-ray, respiratory and blood cultures for microbiology. However, a venous blood gas sample was not taken for analysis of acid base, or lactate levels.
23. A careful assessment of disease severity is required to determine the need for clinical review, inpatient management, and the most appropriate empirical antibiotic therapy. There are a number of assessment scoring systems to stratify according to disease severity. A collaboration of Australian infectious diseases experts summarised a list of features, or 'red flags' that indicate a more severe disease.³ The presence of any of the following features

² The role of the Health and Medical Investigation Team (HMIT) is to assist the Coroner's investigation into the nature and extent of deaths which occurred during the provision of healthcare, and identify potential system factors in healthcare related deaths. HMIT personnel comprise of practising Physicians and Clinical Research Nurses who draw on their medical, nursing and research experiences, skills and knowledge to independently evaluate clinical evidence for the investigation of reportable healthcare deaths and to assist in identifying remediable factors that may assist in prevention and risk management in health services settings.

³ November 2016 edition. Therapeutic Guidelines. 'Community Acquired Pneumonia in Adult; assessment of pneumonia severity.' www.tg.org.au.

indicates those who need close clinical review and are more likely to require inpatient management:

- a. respiratory rate higher than 30 breaths per minute
 - b. systolic blood pressure lower than 90 mm Hg
 - c. oxygen saturation lower than 92 per cent
 - d. heart rate higher than 100 beats per minute
 - e. multilobar involvement on chest X-ray
 - f. acute onset confusion.
24. According to this list, on presentation to the ED Ms Everett had a number of 'red flags', with hypotension, tachypnoea, a low FiO₂ at 85% oxygen saturation in room air, and blood tests indicating an acute kidney injury and abnormal liver function. The low blood pressure, reduced organ perfusion resulting in an acute kidney injury and abnormal liver function indicated multi organ dysfunction.
25. In a 2007 presentation to SHDH, Ms Everett had abnormal liver function tests. A non-alcoholic cause of the abnormal liver function was unable to be established before the LFTs returned to normal. An abdominal ultrasound detected horse shoe shaped kidneys, however found a normal liver, pancreas and gallbladder. The liver function was normalising and chest infection was treated with antibiotics when she was discharged home.

Management of Community Acquired Pneumonia:

26. The evidence fails to satisfy me that the severity and complexity of Ms Everett's condition was fully appreciated, which led to her remaining in the care of a rural hospital that was unsupported by a high dependency or intensive care unit. Nor did it appear there was a consideration of the need to consult with intensive care specialists or retrieval consultants for assistance with clinical decision making. Those with severe CAP are more likely to require intensive respiratory or vasopressor support, usually in an intensive care unit setting. Ms Everett did not receive intensive respiratory support, with supplemental oxygen administered via nasal prongs and a mask.
27. With a systolic blood pressure less than 100mmHg, the standard practice is to initiate IV fluid bolus to maintain sufficient organ perfusion. Following her presentation at 4.22am to the Emergency Department, with significant abnormal vital signs including hypotension, Ms Everett was administered 1L of normal saline over 1 hour. Regarding further IV fluids being administered the medical notes record that at 9.40am '*Pt R (refused) IV KCL*' and later in the afternoon Dr Ginimalage's plan included, '*increase oral intake as she refuses IV fluids.*' Later, at 6.15pm Dr Coshan clarified, '*refuse IV replacement (KCL) due to pain, drinking Cholorvescent.*' According to the Australian Therapeutic Guidelines, empirical antibiotic therapy should treat a broad range of pathogens. Ms Everett was treated with the appropriate empirical antibiotic therapy. With a delay in inserting the IV, the first dose of antibiotics was administered 1.5 hrs following presentation to the ED. Following her death, the PCR testing identified viral influenza B, but as the forensic pathologist commented, the inflammatory reaction was consistent with a bacterial infection.
28. Ms Everett had an increased risk of developing pneumonia due to a reduced lung capacity caused by a skeletal abnormality resulting in small ribs and lungs. There were previous admissions to hospital for chest infections, and more significantly a history of adult respiratory distress syndrome and two tracheostomies. In the ED, there was an opportunity to diagnose sepsis severity and resulting multi organ failure. In accordance with standard

sepsis protocols the performance of a venous blood gas or lactate, with likely abnormal results, would have assisted in determining the degree of respiratory and metabolic acidosis and illness severity.

29. The deranged liver function tests were assumed to be alcohol related. Ms Everett initially admitted to heavy regular alcohol use, however, she subsequently quantified her intake to 2 beers per day. On past admissions she admitted to one glass per week⁴ and two glasses of alcohol per week⁵.
30. The forensic pathology report noted a fatty and cirrhotic liver, however with no pancreas or spleen abnormality. Ms Everett's family were upset by the reference to alcohol abuse in the forensic pathologist's report, as they remarked she was not an alcoholic.
31. Later in the ward, the medical and nursing staff attributed the symptoms of respiratory distress, along with abnormal liver function as Ms Everett experiencing anxiety symptoms caused by alcohol withdrawal. There were only two single observations recorded in an alcohol withdrawal chart, which indicated Ms Everett had a tremor, felt by her but unable to be seen, along with moderate anxiety. There were no auditory, tactile or visual disturbances, agitation or sweats and she was orientated to time and place.
32. Given Ms Everett's clinical condition upon her admission to the ED, particularly in light of the past medical history, a consultation or referral to a higher level hospital with ICU facilities or Adult Retrieval Victoria may have assisted clinical decision making.
33. Due to her structural abnormalities and past history Ms Everett was known to be a difficult intubation. She had a documented abnormal chest wall shape which would make positioning for optimal laryngoscope viewing difficult, along with two previous tracheostomies contributing to a difficult intubation. The medical record Alert card noted Ms Everett to be a difficult intubation.
34. Overnight, Ms Everett was restless and constantly removing her oxygen mask. The oxygen flow was increased until she was receiving maximal oxygen therapy of about 15Litres/minute via a Non-Rebreather mask. Despite this, she was breathing at a rate that would require more than 15Litres/minute of gas. This causes a person to feel like they are suffocating despite receiving oxygen, and so feel the need to remove the mask. The medical and nursing staff did not recognise, respond to or escalate her condition appropriately. Despite an assurance that nursing staff would remain with Ms Everett overnight, the recorded vital sign observations were sparse. The ED resident doctor reviewed Ms Everett two hours before an unconscious collapse. This review was prompted by oxygen desaturation in the 40's at the time when the oxygen mask was removed. The only change in medical management was to administer a bronchodilator nebuliser.
35. Once Ms Everett collapsed, a MET code was called rather than a Code Blue. Although this shortcoming was acknowledged in a review conducted by SHDH, there appeared to be no doctor present at the resuscitation possessing advanced airway skills, nor was one called. (The on-call anaesthetist was in theatre with a patient requiring an emergency caesarean) The emergency code was attended by the ED resident, ward nurse and later Dr Coshan. Dr Coshan, who appeared to arrive after CPR ceased, was a senior GP registrar at the time and on the VMO roster. Despite it being the practice of numerous rural hospitals, it is unclear whether having trainees on this roster is appropriate, particularly when dealing with complex critical cases like this.

⁴ Obstetrics Record 8 July 2004

⁵ Obstetrics Record 20 March 2001

36. It appeared the resuscitation involved the attempted insertion of a gudel airway, with attachment of a non-rebreather mask. With vomit coming up the airway, there was no documentation of suctioning to clear the airway, no documentation of attempting to ventilate using a bag valve mask, no attempt to intubate, nor any documented attempt to contact anyone with advance airway skills. A non-shockable rhythm recorded by the defibrillator indicated Ms Everett did not have an underlying cardiac issue as the cause of her collapse, which was consistent with the clinical history.
37. Consequently, in addition to a lack of appreciation of how sick Ms Everett was, there were deficiencies in the rapid response systems and escalation to a doctor with skills in advanced life support.
38. The HMIT concluded the following;
- a. The severity and complexity of Ms Everett's septic condition was not appreciated, which led to her remaining in the care of a rural hospital that was unsupported by a high dependency or intensive care unit
 - b. The medical and nursing staff did not recognise, respond to Ms Everett's deteriorating respiratory condition and escalate appropriately
 - c. The possible contributing factors included an assumption deranged liver function tests were alcohol related and a misinterpretation of respiratory related symptoms clouded by past familiarity with her anxiety symptoms when hospitalised
 - d. Once Ms Everett collapsed, a MET code was called, rather than a Code Blue. There appeared to be no doctor present at the resuscitation possessing advanced airway skills, nor was one called.
39. Sepsis is a significant cause of in hospital death and a major cause of clinical deterioration. It is a time critical medical emergency, with mortality increasing relative to delays in treatment. There are a number of state based quality programs aimed to improve the early identification and management of sepsis. These include early warning systems such as the NSW Clinical Excellence Commission's 'Sepsis Kills' which led to implementation of the 'Between the Flags' early warning system. A similar program, based on the NSW 'Sepsis Kills' project has been introduced to Victoria.
40. The SHDH 'Track and Trigger' vital sign observation chart is an early warning system to identify trends in vital signs, and therefore identify early the deteriorating patient. The chart specified different levels of abnormal physiological parameters, or combinations of parameters that indicate abnormal vital signs. The vital sign parameters on Ms Everett's chart were modified.⁶
41. Once Ms Everett arrived on the ward at 10.45am, observations were documented on 3 occasions at 3.45pm 8.00pm and 11pm. The statements and retrospective notes in the medical record indicate Ms Everett's condition was deteriorating later in the evening on 14 September 2015:

'Pt had been unsettled all night. Very anxious. Saying she felt like she was drowning. Neb(uliser) given but pt stated that it doesn't help and kept taking the mask off....Pt continually talking to herself even though she was short of breath. Pt just wanted to sleep but just couldn't settle. Temazepam given with no effect. Diazepam given with no effect.'

⁶Oxygen saturations above 91per cent, respiratory rate less than 30 breaths per minute, heart rate less than 130 bpm.

42. The vital sign observation chart outlined the response or action required when abnormal thresholds are reached or deterioration is identified, prompting a medical review. A retrospective note written after her death by Dr Sarwar estimated the time of a medical review at 1.00am.
43. A review conducted by SHDH in combination with the statements provided by the clinical staff indicate the severity and complexity of Ms Everett's condition was not appreciated, which led to her remaining in the care of a rural hospital unable to provide intensive respiratory support. Despite evidence of early warning systems to identify the deteriorating patient and rapid emergency response systems, the SHDH staff did not respond and manage Ms Everett's deterioration.
44. I find that the cause of death of Lysie Everett was complications of pneumonia and pulmonary emphysema with bullae formation.

COMMENT:

45. It is noted that since Ms Everett's death, SHDH has implemented a number of *Organisational Responses, Clinical Education Activities and Clinical Practice Improvements*, aimed at addressing acknowledged gaps that occurred in Ms Everett's care planning, investigation follow-up and monitoring regime.

RECOMMENDATIONS:

Pursuant to section 72(2) of the **Coroners Act 2008**, I make the following recommendations connected with the death:

46. That the Department of Health and Human Services and Safer Care Victoria be informed of the issues identified by a review of the circumstances of Ms Everett's death at SHDH namely;
 - a. The severity and complexity of Ms Everett's septic condition was not fully appreciated, which led to her remaining in the care of a rural hospital that was unsupported by a high dependency or intensive care unit.
 - b. The medical and nursing staff did not recognise, respond to Ms Everett's deteriorating respiratory condition and escalate appropriately.
 - c. The possible contributing factors included an assumption that deranged liver function tests were alcohol related and a misinterpretation of respiratory related symptoms clouded by past familiarity with her anxiety symptoms when hospitalised.
 - d. Once Ms Everett collapsed, a MET code was called, rather than a Code Blue. There appeared to be no doctor present at the resuscitation possessing advanced airway skills, nor was one called.
47. That the Department of Health and Human Services Safer Care Victoria, strengthen and support Swan Hill District Health by providing the required resources and training to address these issues.

I direct that a copy of this finding be provided to the following:

Mr Stuart Everett

Mrs Pamela Borchard

Mr Grant Thompson, JG Thompson Lawyers

Mrs Julie McQueen, Swan Hill District Health

Mr Ted Rayment, CEO Swan Hill District Health

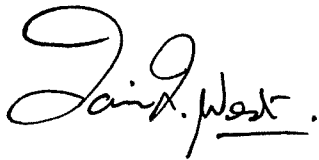
The Victorian Department of Health and Human Services Safer Care Victoria

Royal Australian College of General Practitioners

Monash University School of Rural Health, Faculty of Medicine, Nursing & Health Sciences

The Australasian College for Emergency Medicine

Signature:



IAIN WEST
DEPUTY STATE CORONER
Date: 18 July 2017