QUEENSLAND COURTS

CORONERS COURT OF QUEENSLAND

FINDINGS OF INVESTIGATION

CITATION:	**Non-inquest findings into the death of Etevise Debroh Taai Patelesio**
TITLE OF COURT:	Coroners Court
JURISDICTION:	BRISBANE
DATE:	30/07/2024
FILE NO(s):	2023/2494
FINDINGS OF:	Carol Lee, Coroner
CATCHWORDS:	CORONERS: Management of Acute Behavioural Disturbance in the Emergency Department- Physical and Chemical Restraint- Droperidol- Monitoring Post Sedation- Compliance with Guidelines.

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Introduction

Etevise Debroh Taai Patelesio (Etevise) was born on 4 December 1993 and died on 24 May 2023 at Ipswich Hospital (IH).

Etevise's death was reported to the Coroner because her death appeared to be a violent and/or unnatural death and fell within the definition of a reportable death in the *Coroners Act* 2003.

The role of a Coroner is to investigate reportable deaths to establish, if possible, the cause of death and how the person died. The purpose of a coronial investigation is to establish facts, not to cast blame or determine criminal or civil liability.

Circumstances

Etevise was a 29-year-old woman of Polynesian ethnicity who resided at Redbank Plains with her family.

Etevise's medical history was significant for Turner syndrome with Primary Ovarian Insufficiency (POF)[1], diabetes mellitus[2] (DM) with end stage kidney disease[3] (ESRD), asthma, intellectual impairment, short stature, hypertension requiring anti-hypertensive therapy, iron deficiency anaemia, chronic constipation, previous cardiac thrombus and mental illness[4] (pre-existing conditions).

On 7 May 2023, Etevise was taken to the Emergency Department (ED) of IH by Queensland Ambulance Service (QAS) and Queensland Police Service (Police) in an agitated state under an Emergency Examination Authority[5] (EEA), after self-induced purging at home. On presentation, she was agitated, abusive and demanding Morphine and Ondansetron for abdominal pain and nausea, and continued to insert her hands in her mouth in the ED. The level of agitation was such that it was necessary for physical restraint to be applied after handcuffs were removed by Police. Her family reported to staff that when she '*gets like this*', she requires sedation. Sometime after the administration of Droperidol she arrested, and cardio-pulmonary resuscitation (CPR) was commenced. Return of spontaneous circulation (ROSC) was achieved after 4 minutes. Following intubation and ventilation, she was transferred to the Intensive Care Unit (ICU) for ongoing care. Hypoxic Ischaemic Encephalopathy developed and ultimately, she passed away on 24 May 2023.

Ultimately, Police have not identified any suspicious circumstances surrounding Etevise's death.

Forensic Pathologist's Examination

An external examination, imaging, document review and toxicology studies were undertaken.[6]

The opinion of the forensic pathologist as to the cause of death is based on consideration of the circumstances of death and a post-mortem examination including associated imaging and testing.

The forensic pathologist summarised the findings at examination as follows:

1. Post-mortem CT imaging showed focal coronary, aortic and peripheral artery calcification. Non-specific changes in lungs.
2. External examination showed several healing wounds and signs of medical treatment.

[1] A chromosomal abnormality only affecting females where one of the X chromosomes is missing or partially missing, for which she was taking Hormone Replacement Therapy since 2019.

[2] Diagnosed at 14 years of age, with frequent episodes of diabetic ketoacidosis due to poor compliance with Insulin therapy and recurrent severe infections. After gene testing in 2019, an endocrinologist diagnosed it as MODY type 5 diabetes, which is caused by a mutation of a single gene and requires a modified treatment regime to better control her diabetes.

[3] A complication from diabetes, requiring dialysis. Other complications included retinopathy, peripheral neuropathy and neurogenic bladder; the latter of which required Clean Intermittent Self-Catheterisation up to 6 times per day, with recurrent urinary tract infections.

[4] Adjustment Disorder.

[5] Involuntary transport to hospital for assessment: Section 157D(1) *Public Health Act* 2005.

[6] The next of kin strongly objected to an internal autopsy.

In summary, a definitive cause of the arrest cannot be determined. Possibilities are natural disease or drug related, including medical sedation. Blood samples from around the time of the arrest are not available.

In the opinion of the forensic pathologist, the cause of death was:

1(a) Hypoxic-ischaemic encephalopathy, *due to*
1(b) Cardiac arrest of undetermined cause

Other Significant Conditions

2 Type 1 diabetes mellitus; end stage kidney disease.

Investigation

During the course of the coronial investigation, substantial information has been obtained about Etevise's health care, including but not limited to clinical records, Body Worn Camera (BWC) footage, incident reports, work procedures and staff statements; relevant aspects of which are summarised as follows:

WMHHS

According to information given by West Moreton Hospital and Health Service (WMHHS):

History at IH

1. Etevise had historical contact with the Mental Health Service (MHS) in 2020, in the context of a medical admission for vomiting and abdominal pain. Pseudo seizures and purging behaviours were identified at that time, which was thought to be as a reaction to acute distress as a result of various social factors including chronic poor self-image secondary to bullying and Turner Syndrome. After clinical improvement, it was assessed that there were no grounds for involuntary treatment under the *Mental Health Act* 2016 (MHA) and she was discharged, with community follow up. She was followed up in the community by the Acute Care Team (ACT) but after failing to engage with clinicians, she was discharged from the MHS into the care of her General Practitioner (GP) in January 2021.

2. Further contact with the MHS occurred in April 2021, August 2021 and in 2022 in the context of a medical admission, when it was identified that Etevise was purging and had poor cooperation with the treating team. The impression of the assessing clinicians was that the presentations were similar to the previous presentations and that there was no evidence of a pervasive eating disorder or a clear primary mental health illness. The distress was linked to her physical conditions and that purging was a habit she developed to relieve her abdominal discomfort. She was cleared from a mental health perspective and discharged home. Attempts were made by the ACT to assess her mental state following discharge, but Etevise only superficially engaged. No acute concerns were raised by her or her family. Ultimately, she was discharged into the care of her GP.

3. Her most recent IH admission occurred in March 2023, when she was admitted for an approximate 3.5-week period for an infected permacath (used for her dialysis). It was found to be infected with Methicillin-Susceptible Staphylococcus Aureus with resultant Blood Stream Infection. Treatment included antibiotics and replacement of the permacath.

4. Etevise was well known to the ED at IH. Between December 2018 and 7 May 2023, she presented multiple times to the ED seeking treatment of her medical concerns and then displayed challenging behaviours when presenting to the ED, including physically assaulting nursing staff, yelling and screaming whilst in the ED, wandering around the ED, threats of self-harm, and refusing to engage with clinical staff, including refusing to eat to assist in stabilising her blood sugar levels (BSL's).

5. At times Etevise was brought to the ED under an EEA, following which she was assessed by the MHS. On other occasions, she was provided treatment under the *Guardianship and Administration Act* 2000 as she was assessed as lacking capacity to consent or decline medical treatment for life threatening conditions.

6. Her most recent ED presentations were as follows:
    i. On 5 May 2023, Etevise was brought to the ED by QAS after having been found unresponsive at home with profound hypoglycaemia. Following treatment in the ED she returned to normal. It was determined that the cause of her hypoglycaemia was that she took her morning Insulin and then did not eat. She was discharged to attend her dialysis session and was re-referred to outpatient diabetes services.
    ii. On 6 May 2023, she presented to the ED with hypoglycaemia due to forced vomiting. In the ED she continued to force vomit and was yelling and screaming to staff, despite the administration of treatment. It was noted she was wandering the triage room looking for Morphine, stealing property and attempting to put her whole hand in her mouth to induce vomiting. Assistance was requested from the WMHHS security team in order to keep her from leaving her treatment space. Ultimately, she was sedated by the intramuscular (IMI) administration of 2.5 mg of Droperidol.

ED presentation on 7 May 2023

1. At 07:12 hours Etevise was brought to the ED by QAS and Police under an EEA. She was self-harming by inducing herself to vomit by putting her whole fist into her mouth. At the time she was handcuffed (by Police), agitated and screaming. Her BSL and ketones suggested that she was at risk of developing diabetic ketoacidosis (DKA). Her knuckles had skin off and open wounds. On arrival she was assessed by a nurse and noted to have a patent airway and spontaneous, normal work of breathing. Her circulation status was assessed as normal, and she was documented as being alert but noncompliant and "*agitated+++".* Her documented vital signs included a temperature of 37.6 (near normal), peripheral pulse of 105 (raised) and she looked alert. Capillary return was noted as normal at < 2 seconds, and the Glasgow Coma Scale[7] (GCS) score was noted as normal at 15. Her BSL was 13.5 mmol/L (raised), and ketones were noted at 1.3.

2. After security staff arrived at her bedspace, Police removed their handcuffs and left the ED. Under the direction of the medical and nursing staff, security staff held her arms to prevent further attempts to put her fists into her mouth. This was removed after 5 minutes (at the direction of clinical staff), and then reinstated to allow for her hands to be dressed to reduce the self-induced trauma she was causing herself by inserting her fists into her mouth, and to allow for the safe administration of Droperidol.

3. Dressings were placed on her hands, including significant wrapping[8] to help prevent repeat insertion of her hand in her mouth and therefore further injury.

4. Despite her hands being held, she remained severely agitated and abusive towards staff.

5. A medication order was made to administer 5mg of Droperidol IMI. The medical officer noted within the medication order that this was for her behaviour. This was administered by nursing staff at 07:30 hours.

6. At approximately 07:50 hours, she was sufficiently calm enough for the security officers to release her arms and step away from the bedside.

7. At some point between 07:50 hours and 08:00 hours, the nurse left the bedside in order to source a more sensitive oxygen saturation probe, as her efforts to attach it to Etevise had been unsuccessful.

[7] Sedation assessment tool.
[8] Mitten style, covering fingers.

8. On her return just before 08:00 hours to take Etevise's vital signs, the nurse found Etevise unresponsive and unrousable, with oxygen saturation levels between 78-80% and a weak pulse. Immediate emergency medical review and treatment occurred in the form of oxygen, CPR and administration of Adrenaline via her portcath. Her cardiac rhythm was noted to be in Pulseless Electrical Activity (PEA). A ROSC was achieved at 08:05 hours. She was intubated and ventilated. There was no airway soiling at the time of intubation to suggest aspiration as a cause of her arrest. She was transferred to the ICU for ongoing management.
9. Following the development of anoxic brain injury and consultant opinion of poor prognosis and after several family meetings, it was agreed that withdrawal of active treatment was appropriate. She was transitioned to palliative care and was declared deceased at 13:04 hours on 24 May 2023.

Work Instructions

1. At the time WMHHS had a Work Instruction (WI) in place "*Emergency Department - Sedation for the Management of Acute Behavioural Disturbance*"[9] (WMHHS WI), which can operate when rapid sedation is required in adult patients who present to the ED with acute behaviour disturbance. Contained in this WI is a flow chart setting out various algorithms for sedation for acute behavioural disturbance. It requires the treating medical officer to perform an assessment of the patient's sedation level using the Sedation Assessment Tool (SAT) prior to ordering the sedative medication.

2. Although the record does not evidence a formal SAT having been undertaken before the administration of sedation:
    a. Multiple other sources documented Etevise's significantly agitated behaviour, consistent with a SAT of +3.
    b. The medical officer determined that sedation was required to manage her behaviour as documented in the drug order.

3. The WI dictates choice of sedative agent as well as doses based on the patient's level of agitation, their frailty and the existence of previous drug reactions or Parkinson's Disease.

4. Sedative agents used in this pathway are Droperidol[10], escalating after 2 doses to Ketamine in those with significant behavioural disturbance (SAT score +2 or +3), For patients less behaviourally disturbed (SAT score +1), oral Diazepam and/or Olanzapine is used.

5. Etevise's 5 mg dosage of Droperidol fell within algorithm 2 for the sedation for acute behaviour disturbance in medically frail patients in ED, which also fits her underlying medical state.

6. The level of monitoring post sedation is also contained within the WI. Despite this, no formal observations were undertaken of Etevise between 07:50 hours and 08:00 hours. Nevertheless, the absence of undertaking formal observations ought to be viewed in the following context:
    a. Her bedspace was located directly opposite the doctor's desk.
    b. Nursing staff physically observed her every couple of minutes.
    c. It is often not possible to obtain vital signs initially in significantly agitated patients as they will not submit to this procedure.

7. In addition to this WI, the other applicable WI was "*Security Assistance for Patients Under Emergency Examination Authorities*"[11], which provides a Security Assessment and instructions for managing aggressive patients under an EEA and preventing a patient under an EEA from absconding. It states:

    > *"The physical techniques applied in the act of restraint should be in accordance with Occupational Violence Prevention training techniques and should only be performed by trained staff, and where possible, under clinical direction as part of a team response.*

[9] WMHHS2016118v2, approved on 4 April 2022 and due for review on 4 April 2025.

[10] Supported by literature in terms of superior efficacy and safety. It takes effect after 15 minutes, during which physical restraint may still be required.

[11] WMHHS2020048v2, approved on 21 November 2022 and due for review on 21 November 2024.

If physical intervention is required for immediate self-defence, force applied must be lawful, justifiable and proportionate."

8. There is no suggestion that the restraint used by the security officers was other than in compliance with this WI.

Post incident investigations

1. Multiple investigations undertaken during the ICU admission failed to determine the cause of the cardiac arrest.

2. The case was the subject of discussion at an ED Morbidity and Mortality (M&M) meeting in June 2023, during which multiple clinicians participated. Following review, it was noted that no cause for the arrest was identified and that a cardiology opinion was that the arrest was not Droperidol induced arrythmia. Notably:

    a. A review was conducted of her electrocardiogram (ECG) around the time of administration of Droperidol, which was suggestive of QTc prolongation. QTc prolongation, seen on ECG's, is where there is delayed electrical repolarisation of the heart. This can predispose to a particular type of arrhythmia (Torsades des point) which causes loss of circulation and cardiac arrest. There was no evidence of this arrhythmia during Etevise's arrest.
    b. It is noted that she had previously received Droperidol on numerous occasions in 2023: 1 mg IMI on 2 March 2023, 5mg IMI on 2 March 2023, 10mg IMI on 29 March 2023 and 2.5 mg IMI on 6 May 2023.

    c. Cardiology consultant review on 13 May 2023 concluded that there was evidence of a prolonged QTc on ECG's but no evidence of Torsades during her arrest, that the arrest was not likely related to QTc prolongation. They noted episodes of hypotension and bradycardia in the past in the context of sepsis and felt this may be vagally mediated (due to overactivity of the vagal nerve causing bradycardia).

3. In relation to the issue of the use of physical restraint (but not mechanical restraints), it was acknowledged at the M&M meeting that, although there is a WI regarding the use of sedation to assist with behaviour management in the ED, there was no procedure for the documentation of the use of physical or mechanical restraints. This procedure was currently being developed by WMHHS.

4. Although it was identified that there was a lack of WI surrounding physical and chemical restraints, it was thought that this did not cause Etevise's death. However, the development of such a WI will assist staff to undertake a more rigid approach to the recording and assessment of patients who require physical restraint.

Expert Opinion

Independent opinion was obtained from Professor Anthony Brown, having been funded by the Coroners Court of Queensland (CCQ). Professor Brown is a highly experienced Emergency Physician with many years of consultant practice. Professor Brown currently works in a tertiary ED in Brisbane and is regularly briefed to provide opinion in medico legal and coronial contexts.

A summary of his opinion is as follows:

1. As to the appropriateness of the use of physical and chemical restraint on Etevise in the ED on 7 May 2023:

    a. The use of physical and chemical restraint on Etevise in the ED on 7 May 2023 was entirely appropriate. They were clearly indicated as an emergency in the circumstances because she arrived by QAS with her wrists in handcuffs, which had been placed by Police. Handcuffs are painful to the wearer and restrict the medical access to a patient.

They should be removed in hospital as soon as it is safe to do so, providing an alternate restraint process is in place first. This was provided by asking the security officers to place each of her hands on top of the respective trolley side rail, and then holding them there.

b. Thus, the SIRS[12] correctly identified that Etevise was on an EEA and so was regulated, was being disruptive, and that other people were threatened. This report correctly identified the need for restraint, as described above. This restraint was provided by two security officers, with one on either side of her trolley. Each security officer then held her hand/wrist away from her mouth on top of the respective trolley side rail, thereby preventing further harm to herself, and physical harm to others.

c. The behaviour of the security officers was impeccable. They are to be commended for their firm, but professional and caring approach, with the minimum use of force at all times. They remained calm, polite and in control of the situation, without in any way inflaming it. They clearly fulfilled their roles within the scope of the WMH WI and are to be congratulated for their professionalism.

d. Whilst he agrees that the development of a WI about the use of mechanical restraint is a sensible decision, this should in no way reflect against the highest quality of care Etevise received from the security officers on 7 May 2023. Also, this written procedure development must not detract from the far more pressing IH ED priority of improving the provision and quality of medical vital signs monitoring, in the sedated patient with an acute severe behavioral disturbance.

e. Chemical restraint was then also clearly indicated, as Etevise did not respond to non-pharmacological strategies, such as clear verbal de-escalation on several occasions by the nurse, or to the presence of, and physical restraint by, the security officers. He agreed that she appeared to have a SAT score of +3 '*combative, violent, out of control, continual loud outbursts of speech*.' However, he noted that there was no written documentation by any treating medical officer, that he or she had performed an objective sedation assessment using the SAT, as recommended in the WI.

f. Regardless of the lack of medical officer documentation of Etevise's SAT score of +3, he agreed that the decision to give 5 mg Droperidol IMI was appropriate, in accordance with the WI. In this respect, he noted that Etevise had previously been successfully administered Droperidol in an ED setting, with no adverse effects.

g. In addition, she clearly had a number of serious medical co-morbidities including type 1 DM, and ESRD, justifying a lower dose of 5 mg, not 10 mg Droperidol in the '*medically frail patient*'. The MIMS Medicines Information leaflet on Droperidol use similarly recommends special care in its use, under section 4.4 Special Warnings and Precautions for Use, '*Renal failure (particularly with chronic dialysis)*', and under use in renal impairment, "*Droleptan (Droperidol) Injection should be administered with caution to patients with kidney dysfunction, because of the importance of these organs in the metabolism and excretion of drugs*".

h. Consequently, he opined that a 50% reduction in the usual adult behavioural sedation dose of Droperidol from 10 mg IMI to 5 mg IMI to have been entirely appropriate and correct. He also noted that surprisingly, there is no guidance published in the medical literature on what the exact recommended dose reduction is for the use of Droperidol IMI (or intravenously) in ESRD with dialysis.

2. As to whether Etevise was monitored appropriately following the administration of sedatives in the ED:

    a. She was not monitored appropriately following the administration of sedatives in the ED because the '*WMHHS WI Emergency Department – Sedation for the Management*

[12] WMHHS Incident report.

of Acute Behavioural Disturbance', on page 5, the '*Algorithm 2: Sedation for Acute Behavioural Disturbance in Medically Frail Patients in ED*', and on page 6, the '*Step 4*' both clearly set out which vital signs should be measured, and how often.

b. Thus, page 6, Step 4 states: "*Patients requiring parenteral sedation should have their vital signs (pulse, blood pressure, O2 saturation level, and respiratory rate) measured:*
    i. *every 5 minutes for 20 minutes following administration of each sedation dose.*
    ii. *then every 30 mins until SAT score of 0.*
    iii. *then hourly unless otherwise stated by treating ED medical officer".*

c. However, the *Algorithm 2 in the WI* on page 5 under a blue heading "*Monitoring a parenterally sedated patient*" then states an apparently different frequency for these vital sign's observations. Instead,: *Algorithm 2* states "*All patients receiving sedation must have: Continuous pulse oximetry, vital signs, SAT score, GCS motor score monitored every 15 mins for 60 mins*". This anomaly in the WMHHS WI giving different frequencies for how often vital signs should be measured, either 5-minutely, or 15 minutely is acknowledged by WMHHS.

d. A Yellow Box at the base of the Algorithm 2 then gives the criteria when to notify a doctor, which include an oxygen saturation < 94%, a respiratory rate < 10/min, a pulse rate < 50/min, a BP < 90/50 mmHg and a GCS motor score < 5.

e. Meanwhile, the NSW Government Health Guideline '*Management of patients with Acute Severe Behavioural Disturbance in Emergency Departments*' on page 11 also recommends the same 5-minutely frequency of vital signs measurement as on page 6, Step 4 of the WMHHS WI. Thus, the NSW Government Health Guideline recommends vital signs every 5 minutes for 20 min, then every 30 min for 2 hours.

f. He believes that the confusion in the WMHHS WI, on page 5, '*Algorithm 2: Sedation for Acute Behavioural Disturbance in Medically Frail Patients in ED*' and '*Algorithm 1: Sedation for Acute Behavioral Disturbance in ED*' on the page before, page 4), where instead of 5-minutely vital signs being recommended, it is now changed to 15-minutely vital signs, appears to have come directly from the Queensland Health Department of Health Guideline dated 2016, which was last revised in October 2021, titled '*Management of patients with Acute Severe Behavioural Disturbance in Emergency Departments*'[13] (QH guideline). In Appendix two: on page 23 of this guideline there is a light brown box on the lower-mid right side, titled '*Monitoring a parenterally sedated patient*'. This box reads as below and states:

"All patients receiving sedation must
have
Continuous pulse oximetry
vital signs
Sedation Assessment Tool (SAT)
Score monitored every 15 minutes for
60 minutes"

a. He interprets this box to actually mean that there should be continuous pulse oximetry and vital signs; and then that a SAT score should be done every 15 minutes for 60 minutes. This 15-minutely frequency for a SAT score would seem appropriate and logical.

b. He did not believe that the frequency of '*every 15 minutes…*' was ever meant to apply to the '*Continuous pulse oximetry, vital signs*'. These should remain at 5-minutely.

c. Whatever the interpretation, he could find no record of any vital signs having been

[13] 'Management of patients with Acute Severe Behavioural Disturbance in Emergency Departments', Version 4.0, 14 October 2021.

taken since those that were recorded at triage, at 07:13 hours, until she was found at 08:00 hours.

d. In addition, he could see no evidence of any continuous electronic vital sign recording on the monitor above Etevise's trolley either, in the two BWC video footage files, from 07:30 hours up until around 07:50 hours – 07:55'ish. The monitor above her trolley appeared to have been switched on, but it was never attached to her.

e. As Etevise's hands had been bandaged up, it seemed that no oxygen saturation recordings were being made before 08:00 hours either.

f. Accordingly, it is clear that Etevise was not being monitored at all electronically following the administration of sedatives in the ED, nor did she have any vital signs performed after 07:13 hours until her sudden collapse at 08:00 hours.

3. As to whether the failure to provide care/provision of inappropriate care (if any) caused or hastened Etevise's death:

a. It is more likely than not that the failure to provide care/provision of inappropriate care (if any) did hasten Etevise's death. However, he could not state that it had caused her death. This is because despite exhaustive antemortem testing, as well as postmortem testing, there was no clear or definite cause found for her suddenly going into a PEA arrest.

b. However, he did consider that if she had been being monitored correctly, at least with continuous oxygen saturations and a continuous ECG recording, and possibly if she had also had 5-minutely vital signs measurements including blood pressure and respiratory rate, that her deterioration would have been discovered far quicker. He believed that had continuous or 5-minutely observations occurred, she could then have been resuscitated earlier, before going into a full PEA arrest.

c. A cardiac arrest following sedation for the patient with an acute severe behavioural disturbance is not recognised as one of the ten Australian Sentinel Events or a '*Never event*' by the Australian Commission on Safety and Quality in Health Care. However, it can be argued that this occurrence fulfils the descriptor of a Sentinel Event, which is "*A sentinel event is a particular type of serious incident that is wholly preventable and has caused serious harm to, or the death of, a patient*."

d. He could not say that the lack of any vital signs monitoring was causal of the PEA arrest. However, he did believe that if Etevise's deterioration had been discovered quicker, with continuous monitoring or regular 5-minutely vital signs measurement, and if she had then been resuscitated earlier immediately on recognising her deteriorating vital signs, that she would likely have not then gone into a full PEA arrest, or that she would then have come out of it much sooner, without fatal hypoxic brain damage.

e. Ultimately, no cause was found for her PEA arrest, as stated above. Several important causes were eliminated, such as a cardiac rhythm disorder like polymorphic ventricular tachycardia or Torsades de pointes, possibly related to a prolonged QTc on her ECG, as this was never seen on any ECG monitor. Also, acute hyperkalaemia was not causal, as the potassium level was normal. Sepsis was never established, nor was a heart attack or pulmonary embolism.

f. He did consider that the temporal relationship to Etevise being given Droperidol 5 mg IMI was, more likely than not, related to the onset of her PEA because Droperidol is well recognised in every description of its use, to cause both respiratory depression and hypotension. Respiratory depression and hypotension would also be more likely to occur in the presence of ESRD with dialysis, although he did recognise that a reduced dose of 5 mg Droperidol IMI was given.

g. In addition, both respiratory depression and hypotension are, in turn, well recognised

to be important causes of PEA, from hypoxia and hypovolaemia.

h. Etevise's co-morbidities with ESRD and type 1 DM would also have increased her risk of PEA arrest, in the face of unrecognised hypoxia and hypotension.

4. As to any other issues he may wish to comment on within his field of expertise, he made the following recommendations:

   a. The confusion in the WMHHS WI around the different recommendations for how often vital signs should be measured, between the two Algorithms and Page 6, whether 15-minutely or 5-minutely, should be addressed urgently. He considered that the WI, which is due for review on 4 April 2025, and the QH guideline should both be urgently amended to eliminate this confusion. They should both clearly now recommend:
      i. Continuous monitoring pulse oximetry
      ii. Vital signs every 5 minutes for 20 minutes
      iii. SAT score every 15 minutes
      (This SAT score 15-minute frequency must be clearly separated from the 5-minutely vital signs monitoring recommendation).

   b. He also recommends that as much continuous bedside electronic monitoring as possible should be used, with appropriate alarms set for any critical change in a parameter. This is providing the agitated patient does pull off the respective monitor probe / sticker / nasal prong.

   c. Thus, he recommends not only continuous oxygen saturation monitoring, but also continuous ECG monitoring as well. The ECG trace will additionally give a pulse rate depiction, as well as a respiratory rate, although the latter can be an unreliable reading, when taken from the ECG leads.

   d. All the vital signs being continuously monitored must have appropriate alarm parameters set and switched on, to give an audible and or visual alarm with any critical deterioration. The clear advantage of continuous electronic monitoring is that even with regular, 5-minutely vital signs observations, it is possible for an adverse event to occur suddenly, and not be picked up until, by definition, 5 minutes later.

   e. Continuous monitoring of pulse oximetry saturation, pulse rate, respiratory rate and ECG rhythm, with appropriate alarms set, in every sedated patient following an acute severe behavioural disturbance, would flag any deterioration as soon as it occurs.

   f. He also recommends that an end-tidal carbon dioxide (ETCO2) monitor should be used routinely as well because hypoxia following any use of sedation, including in the sedated patient with an acute severe behavioural disturbance, is a well-recognised and potentially lethal complication. It is clearly essential to recognise hypoxia early, and deal with any developing hypoxia immediately.

   g. The best monitor to recognise the early development of hypoventilation or apnoea following sedation that could then lead to critical hypoxia is the ETCO2 monitor. This monitor can be worn as nasal prongs in the spontaneously breathing patient, and will be displayed as an ETCO2 reading, that will drop as soon as a patient's breathing starts to fail.

   h. Immediately a patient's breathing becomes reduced or shallow, and well before the oxygen saturation monitor starts to drop, an ETCO2 monitor will flag a problem with ventilation. This would form an invaluable addition to electronic patient monitoring following sedation in the sedated patient, with an acute severe behavioral disturbance.

   i. An ETCO2 monitor is considered the standard of care in anaesthetic practice, and it is already in regular use in the ED Resuscitation Area for all intubated or ventilated patients. An ETCO2 monitor could now be extended to monitoring the rate and depth of breathing in the spontaneously breathing patient, following sedation for an acute

severe behavioural disturbance. It would provide the earliest indication of any hypoventilation or apnoea and would be invaluable to flag this problem before critical hypoxia occurs.

WMHHS Response

WMHHS was provided with an opportunity of responding to Professor Brown's opinion; a summary of which appears as follows:

1. WMHHS indicated that it appreciated and acknowledged the Professor's opinion, and says as follows:

    a. In relation to the absence of oxygen saturation recordings taken before 08:00 hours, it noted that Etevise's hands were bandaged to prevent further self-harm. A nurse had unsuccessfully attempted to connect the device to Etevise's fingers and then to her toes before leaving the bedside momentarily to source a more sensitive device.

    b. It agrees with the recommendations made about urgent revision of both the WMHHS WI and QH guideline, noting that WMHHS has no control over the latter but will alert the Department of Health with a view to urgent amendment. These should reflect statewide expectations.

    c. It agrees that continuous monitoring should be used in all sedation procedures.

    d. Further input is required into the ability to use of the monitoring technique (ETCO2 monitoring via nasal prongs) as it is unclear if all areas would meet this capability (i.e., not all monitors also have the attached CO2 module to allow this). At present only the Resus area would be a viable area, however, in many cases it would not have availability to take all patients sedated for behaviour disturbance.

2. The Director of Emergency at WMHHS added the following:

    a. Professor Brown's assessment of the situation appears accurate and complete. His assessment includes that while the PEA arrest (of unknow cause) would likely not be avoidable and was unrelated to the care provided, the lack of continuous monitoring may have contributed to the degree of hypoxic injury that the patient underwent.

    b. It should be noted that this is only an extrapolation, as pointed out by Professor Brown:

        i. The oxygen saturations were 78-80% on first monitoring – although this is low, it is not critical and is not the usual level of oxygenation to cause hypoxic brain injury in a short period of time, and it is noted that a pulse was still palpable at this time.
        ii. Hypoxic brain injury is an extremely common outcome after a PEA cardiac arrest due to the lack of blood flow to vital organs including the brain during the period that the heart is not actively and effectively beating.
        iii. CPR aims to maintain blood flow to vital organs, however the current knowledge is that even with CPR provided immediately for cardiac arrest in a hospital setting, the survivability with a favourable outcome (i.e. minimal or no hypoxic brain injury) is between 15.1% and 22% if only 1 minute of CPR was required. It is less than 1% chance of survivability with favourable outcome after 32 minutes.
        iv. It is likely that the CPR was around 5 minutes (extrapolated from the medical notes and from Professor Brown's review), which would have a very low chance of survival with a favourable outcome.
        v. It should be noted that whether the cardiac arrest is witnessed (occurs while someone is watching the patient or the vital signs) or whether it is unwitnessed, the difference in survivability with favourable outcome only differs by a small percent for non-shockable rhythms (such as PEA).
        vi. In patients who have a non-shockable rhythm as the cause of the cardiac arrest (this includes PEA as in the patient's case), the chances are lower again.

3. WMHHS has taken the following actions since Etevise's death to address any shortcomings in care identified and to avoid similar events from occurring in the future:

    a. The finalisation and publishing of the '*Restrictive Practices: Adults (over 18 years) (excluding patients under the Mental Health Act 2016)*' Procedure.[14] The lack of such a procedure was identified at the review of Etevise's death and was an action item out of the M&M Meeting. That said, as opined by Professor Brown, the development of such a procedure whilst sensible, must not detract from the far more pressing priority of improving the provision and quality of medical vital signs monitoring, in the sedated patient with an acute severe behavioural disturbance. Accordingly, this issue has been addressed and rectified as set out in point (b) below.

    b. Reviewing and amending the applicable WMHHS WI, in line with the comments made by Professor Brown and his recommendations. This review and amendment of this WI to address the anomaly giving different frequencies for how often vital signs should be measured has been commenced and is being progressed as a matter of priority. WMHHS is happy to provide a copy of this updated work instruction to the Coroner once finalised.

    c. Education will occur to inform staff about the new Procedure and updated WI.

4. Given the circumstances of Etevise's presentation, WMHHS has no concerns regarding the treatment that was provided to her, noting that her deterioration was unexpected, and the cause of her cardiac arrest cannot be determined at this stage, but possibilities include natural disease or drug related, including medical sedation. If any further information comes to hand regarding the cause of death, WMHHS reserves its right to provide further responses and information as necessary.

5. WMHHS extends its sympathies to Etevise's friends and family.

Department of Health Response

The Department was provided with an opportunity of responding to Professor Brown's opinion. Dr Helen Brown, Deputy Director General of Clinical Excellence Queensland, Queensland Health provided a response of behalf of the Department; a summary of which appears as follows:

1. Consultation with the Co-Chairs of the Queensland Emergency Department Strategic Advisory Panel (QEDSAP) occurred, yielding the following advice:

    a. Agreement with Professor Brown's comments that a lack of monitoring led to a missed opportunity to intervene earlier in this patient's care. This could have reduced the impact of undetected respiratory depression and hypotension that may have been the precipitant of her PEA arrest. While the cause of death is unclear, it is likely that this contributed to her demise.

    b. Agreement with Professor Brown's comments around confusion between guidelines on what constitutes appropriate monitoring. However, this had no impact on this patient, who had minimal to no monitoring. To add clarity to Professor Anthony Brown's recommendations:
        i. Continuous monitoring pulse oximetry.
        ii. Continuous ECG monitoring.
        iii. Continuous end-tidal carbon dioxide (EtCO2) monitoring.
        iv. Vital signs every 5 minutes for 20 minutes.
        v. SAT score every 15 minutes.
        vi. With the proviso that sometimes i, ii & iii are difficult with an agitated patient and that in these cases Senior Clinical discretion should be applied.

[14] WMHHS2024014V1, approved 17 June 2024 (review date 17 June 2026).

vii. Australasian College for Emergency Medicine (ACEM) Guideline.[15]

c. It is unclear whether an ED SMO or Registrar was involved in the care of the patient at or around 07:30 hours when the 5mg IMI Droperidol was administered for sedation in the context of Acute Behavioural Disturbance. An ED SMO only appears to become involved at 08:00 hours after the nursing staff discover the patient is now GCS 3. Many sites have a structured escalation response to an acute behavioural disturbance that is senior clinician led and provides a co-ordinated and clear pathway of care e.g., Code Grey, Behaviour of Concern (BOC). This integrates care and reduces risk for the individual patient, staff and other patients.
    i. '*Activation and implementation of Code Grey Aggression response in the Townsville University Hospital (TUH) Emergency Department (ED)*', TUH.[16]
    ii. '*Behaviour of concern response, adult and paediatric patients, Emergency Departments, SCHHS'*.[17]
d. An individual clinical incident needs to be viewed within the context of other concurrent emergency department (ED) pressures. Literature shows that an over-crowded ED is less safe "*after 6–8 hours, there is one extra death for every 82 patients delayed*"[18] and ED over-crowding is predominantly caused by hospital access block.[19] It is unclear from the material in this case what the state of the rest of the IH ED (and hospital) was at the time of this unfortunate incident or their staffing situation (some sites cannot source the appropriate levels of clinical staff). This does not take anything away from the earlier recommendations, however solutions focused on broader system overload will allow ED clinical staff to focus more on individual patient care to the benefit of the community.

2. The QH guideline is due for renewal and QEDSAP will ensure more details are included around monitoring.

Given that the QH guideline was last reviewed on 14 October 2021, I have encouraged Dr Brown to arrange for a review to occur as a matter of priority, to mitigate the risk that has been identified by this case and to align it with statewide expectations.

Conclusion

After considering the material obtained during the coronial investigation, I consider that I have sufficient information to make the necessary findings in relation to Etevise's death and that an Inquest is not required.

I accept the forensic pathologist's opinion as to the cause of death and find that the cause of Etevise's death was:

1(a) Hypoxic-ischaemic encephalopathy, *due to*
1(b) Cardiac arrest of undetermined cause.

Other Significant Conditions

2 Type 1 diabetes mellitus; end stage kidney disease.

The circumstances of this incident have been the subject of comprehensive investigation.

[15] ACEM PS63, 'Guidelines for Safe Care for Patients Sedated in Health Care Facilities for Acute Behavioural Disturbance', reviewed April 2019.

[16] THHSCLI150972-V6, 'Activation and implementation of Code Grey Aggression response in the Townsville University Hospital ED', effective 17 August 2023.

[17] Procedure 000280 'Behaviour of concern response, adult and paediatric patients, Emergency Departments, Sunshine Coast Hospital and Health Service', approved 28 November 2022.

[18] 'Association between delays to patient admission from the emergency department and all-cause 30-day mortality', Jones S, *et al*. 15 November 2021.

[19] 'Access Block', ACEM: ACEM - Access Block

I find that in the context of an acute presentation to the ED at IH during which physical and chemical restraint was applied, Etevise suffered a cardiac arrest and subsequently died in the ICU from hypoxic-ischaemic encephalopathy.

I accept the learned opinion of Professor Brown. I find that the use of restraint, both physical and chemical was indicated in the complex situation that the ED staff faced with Etevise's presentation. Having carefully reviewed the BWC footage, it is clear that the staff were professional and attentive in their treatment and care of Etevise, and did their best despite her challenging and offensive behaviour which threatened not only her safety but the safety of others in the ED. Against that background and in view of her significant comorbidities, although there was a failure to formally monitor Etevise post sedation, on the currently available evidence I am unable to make a positive finding that this failure caused or contributed to the outcome. Despite extensive antemortem and postmortem[20] investigation, the cause of the unexpected cardiac arrest has not been determined.

I am satisfied by the actions undertaken by WMHHS and the Department of Health as a result of this tragic incident, in order to address the identified shortcomings and to avoid a similar incident from occurring again in the future.

I extend my condolences to Etevise's family and friends for their loss.

Findings required by s.45

Identity of the deceased – Etevise Debroh Taai Patelesio

How she died – In the context of an acute presentation to the Emergency Department at Ipswich Hospital during which physical and chemical restraint was applied, Etevise suffered a cardiac arrest and subsequently died in the ICU from hypoxic-ischaemic encephalopathy. I accept the learned opinion of Professor Brown. I find that the use of restraint, both physical and chemical was indicated in the complex situation that the ED staff faced with Etevise's presentation. Having carefully reviewed the BWC footage, it is clear that the staff were professional and attentive in their treatment and care of Etevise, and did their best despite her challenging and offensive behaviour which threatened not only her safety but the safety of others in the ED. Against that background and in view of her significant comorbidities, although there was a failure to formally monitor Etevise post sedation, on the currently available evidence I am unable to make a positive finding that this failure caused or contributed to the outcome. Despite extensive antemortem and postmortem investigation, the cause of the unexpected cardiac arrest has not been determined. I am satisfied by the actions undertaken by WMHHS and the Department of Health as a result of this tragic incident, in order to address the identified shortcomings and to avoid a similar incident from occurring again in the future.

Place of death – Ipswich General Hospital IPSWICH QLD 4305 AUSTRALIA

Date of death– 24 May 2023

Cause of death– 1(a) Hypoxic-ischaemic encephalopathy
1(b) Cardiac arrest of undetermined cause
Other Significant Conditions
2 Type 1 diabetes mellitus; end stage kidney disease

I close the investigations.

[20] Within the limits of an external examination, given the strong family objection to internal autopsy.

Carol Lee
Coroner
CORONERS COURT OF QUEENSLAND
30 July 2024