Coroners Act 1996
[Section 26(1)]

Western *Australia*

RECORD OF INVESTIGATION INTO DEATH

Ref: 56/12

I, Barry Paul King, Coroner, having investigated the death of ***Antoinette Williams*** *with an inquest held at the* ***Perth Coroner's Court, Court 51, CLC Building, 501 Hay Street, Perth,*** *on* ***25 February 2014*** *find that the identity of the deceased person was* ***Antoinette Williams*** *and that death occurred on* ***13 October 2012*** *at* ***Graylands Hospital*** *from* ***combined drug effect and myocarditis*** *in the following circumstances:*

Counsel Appearing:

Ms M. Smith assisting the Coroner
Ms R Hartley (State Solicitors Office) appearing on behalf of the Health Department of WA, Broome Hospital, Graylands Hospital and Royal Perth Hospital
Mr N Snare (ALS) appeared for the family of the deceased
Mr D Clyne and Mr J Campbell (DLA Piper) appeared for Joanne Johnson
Mr T Hammond (Panetta McGrath) appeared for Dr Jack Davies
Ms B Burke (ANF) appeared for Ana Hill and Andrea Rieusset
Mr W Burg appeared on instructions from Mr Jonathan Davies for Emanuelle Yakani
Mr D Bourke (Clayton Utz) appeared for the Royal Flying Doctor Service

Table of Contents

INTRODUCTION

1. Antoinette Williams (**the deceased**) was a 19 year old Aboriginal woman who died at Graylands Hospital (**Graylands**) from a combination of drug effect and myocarditis.

2. As the deceased was an involuntary patient under the *Mental Health Act 1996* at the time of her death, she was a 'person held in care' under section 3 of the *Coroners Act 1996*.

3. Section 22 (1)(a) of the *Coroners Act 1996* provides that a coroner who has jurisdiction to investigate a death must hold an inquest if the death appears to be a Western Australian death and the deceased was immediately before death a person held in care.

4. An inquest to inquire into the death of the deceased was therefore mandatory.

5. Under s.25 (3) of the *Coroners Act 1996*, where a death investigated by a coroner is of a person held in care, the coroner must comment on the quality of the supervision, treatment and care of the person while in that care.

6. The death of the deceased was investigated together with the death of nine other persons who immediately before death had been persons held in care as involuntary patients at Graylands under the *Mental Health Act 1996*.

7. A joint inquest commenced before Coroner D.H. Mulligan in the Perth Coroner's Court on 27 August 2012. Evidence specific to the deceased was adduced on 5 to 12 and 19 April 2013. The joint hearings were completed on 22 April 2013.

8. Coroner Mulligan became unable to make findings under s25 of the *Coroners Act 1996,* so I was directed

by Acting State Coroner Evelyn Vicker to investigate the deaths.

9. To remove any doubt of my power to make findings under s.25, on 25 February 2014 I held another inquest into the death of the deceased and the other nine persons. The evidence adduced in that inquest was that which had been obtained by Coroner Mulligan, including exhibits, materials and transcripts of audio recordings of the inquests. Interested parties who were present at the inquests before Coroner Mulligan were invited to make fresh or further submissions. All of the parties indicated their agreement with the appropriateness of the procedure I had adopted.

10. I should note that there was a great deal of evidence adduced at the inquests that was related to general or systemic issues pertinent to Graylands. That evidence was adduced to investigate whether those issues had a bearing on any or some of the deaths and to allow the coroner to comment on the quality of supervision, treatment and care of the deceased patients. For example, evidence of the condition of the buildings at Graylands containing wards was provided in order to allow the Court to investigate whether the physical environment of the wards would have been more therapeutic had the buildings been refurbished.

11. That general evidence was useful in providing an overview of the context in which the deceased persons were treated for their mental illnesses; however, in my view many of the issues the subject of that evidence were not sufficiently connected with all the respective deaths for me to comment on those issues under s.25 (2) or (3) of the *Coroners Act 1996* generally as if they did.

12. I have therefore not addressed those general issues separately from a consideration of each death. Rather, where I have come to the view that the issues were connected with the death or were potentially relevant

to the quality of the supervision, treatment and care of the deceased, I have addressed them in the respective findings.

THE DECEASED

13. The deceased was born in Broome on 9 March 1993 and had five siblings. She lived with her mother and an extended family including her grandparents and a close friend of her mother's, Marie, who became like another mother to her and her sister Priscilla. She had little contact with her father.[1]

14. Her education was limited because she did not attend school regularly, so her literacy and numeracy levels were low.[2]

15. The deceased started drinking alcohol at about the age of 15 and was in an abusive and unstable relationship with a much older man from the time she was 16 years old. She had no children. [3]

16. In 2012 Marie died quite suddenly, and that had a stressful effect on the deceased.[4]

17. At the time close to her death the deceased was unemployed. She had been living with her mother and her older sister in Broome. She had lost two brothers to suicide in the prior two or three years and an uncle had also committed suicide.[5]

18. The deceased was assessed as having an impulsive personality. She had a history of chronic alcohol and cannabis abuse, but she had no known significant medical co-morbidities and no history of psychotic illness or self-harm attempts.

---

[1] ts 506
[2] ts 506
[3] ts 508, 515
[4] ts 514
[5] Ex 1, Vol 4, Tab 1, p3

19. There is evidence indicating that the deceased had stabbed her mother while intoxicated in late September 2012 and that she had been charged in relation to that incident. Apparently the charge had been adjourned to a date in December 2012.[6]

FIRST SUICIDE ATTEMPT

20. On 10 October 2012 the deceased attempted suicide by hanging herself from a tree with a mobile phone charger cable following an argument with her partner about his socialising with other women. That day she had been drinking straight spirits and had been using cannabis.

21. A family member cut the deceased down from the tree before she lost consciousness. She was taken by police to the emergency department at Broome Hospital at around midnight where she was seen by a locum medical officer, Dr Adam Michael. She told Dr Michael that she did not want to be alive anymore.[7]

22. Dr Michael conducted a risk assessment and noted a number of risk factors. While he was trying to examine the deceased, she repeatedly tried to leave the hospital, requiring the police to restrain her.[8]

23. Dr Michael considered that the deceased was at a high risk of another suicide attempt, so he asked her to consent to voluntary admission in order to be assessed further, but she declined. He felt that there was no less restrictive way to manage her safely than to admit her as an involuntary patient and to sedate her for assessment by a psychiatrist, so he completed a Form 1 under the *Mental Health Act 1996* [9] and ordered that she be administered clonazepam and olanzapine.[10] He reviewed her condition at 5.00am on

[6] Ex 1, Vol 4, Tab 1, p3
[7] Ex 1, Vol 1, Tab 9
[8] Ex 1, Vol 1, Tab 9
[9] Ex 1, Vol 3, Tab 1, p12
[10] Ex 1, Vol 1, Tab 9

11 October 2012 and at 7.00am handed her management over to District Medical Officer, Dr Yehuda Levy.

24. During that morning, Dr Levy observed the deceased alternate between sleeping and then swearing loudly when she was awake.[11]

25. At about 2.00pm the deceased was seen by medical officers in the Kimberley Mental Health and Drugs Service (**KMHDS**) team, Dr Sarah Duff and Dr Sujay Nama, who considered that the deceased should not be kept involuntarily because she was now sober, compliant and assuring her own safety.[12]

26. Shortly after that, the deceased walked out of the hospital. Dr Levy caught up with her in the courtyard and managed to convince her to sit and talk. The deceased was adamant that she wanted to go home.[13]

27. During their conversation, Dr Levy spoke by telephone with consultant psychiatrist Dr Sivasankaran Balaratnasingam, who was known as Dr Siva Bala. Dr Bala had been in a meeting with the KMHDS team discussing the deceased's case.[14]

28. Dr Bala considered the deceased to be a chronic high risk of suicide, but in his view restraining her against her will and sending her to Graylands would not change that risk. He agreed that she should be allowed to leave the hospital despite his and Dr Levy's reservations. Dr Levy arranged for the deceased to be given a lift home.[15]

29. It is worth explaining at this time that, though Broome Hospital had a mental health unit called Mabu Liyan, in October 2012 it was not authorised under the *Mental Health Act 1996* to accept

[11] Ex 1, Vol 1, Tab 17
[12] Ex 1, Vol 4, Tab 9
[13] Ex 1, Vol 1, Tab 17
[14] Ex 1, Vol 1, Tab 17
[15] Ex 1, Vol 1, Tab 17

involuntary patients under that Act.[16] In most cases, patients subject to Form 1 involuntary status were sent via the Royal Flying Doctor Service (**RFDS**) to Graylands for psychiatric assessment. These patients were usually sedated and accompanied by police officers.[17]

SECOND SUICIDE ATTEMPT

30. On the night of 11 October 2012 the deceased again attempted to hang herself following an argument with her partner while under the influence of alcohol and cannabis. She had put a garden hose around her neck and placed it over the branch of a tree, but had not completed the act of hanging.[18]

31. At about 11.25pm police officers took the deceased to Broome Hospital where she told the District Medical Officer on duty, Dr Bradley Atkinson, that she had been faking the hanging to scare her family and that she just wanted to go home. Dr Atkinson assessed her as intoxicated and agitated, and noted that she was screaming intermittently and threatening to kill her partner for being with another woman. The deceased had to be restrained by the police officers and, when not restrained, managed to bite hospital staff in her agitation.[19]

32. It was brought to Dr Atkinson's attention that the deceased had presented in a similar state 48 hours earlier. He considered her to be at a significant risk to herself, so he completed Forms 1 and 3 under the *Mental Health Act 1969* so that she was admitted involuntarily and could be assessed in the morning. The deceased was then sedated and transferred to a ward when a bed became available at about 2.00am.[20]

[16] Ex 1, Vol 1, Tab 8
[17] Ex 1, Vol 1, Tab 17
[18] Ex 1, Vol 3, Tab 2, p27
[19] Ex 1, Vol 1, Tab 14
[20] Ex 1, Vol 3, Tab 2, p27

33. Later that morning Dr Levy arrived for duty at the hospital and noted that the deceased had again been admitted. He saw that she was sedated and that she had a nurse assigned to be with her constantly. When the deceased awoke mid-morning, Dr Levy heard her yelling and swearing with most of the abuse being directed at her partner. To Dr Levy she seemed inconsolable, heartbroken and in great psychological and emotional pain.[21]

34. At about 10.30am Dr Nama interviewed the deceased, who was uncooperative but denied current suicidal thoughts. The deceased's mother was also present. Dr Nama felt that the deceased lacked insight into her condition and that her judgement was impaired. He offered her voluntary admission into Mabu Liyan, but she and her mother refused. Due to the high risk she posed to herself, he decided to refer the deceased to Graylands[22] and went to discuss that decision with Dr Bala. Dr Bala agreed.[23]

35. At the inquest before Coroner Mulligan the deceased's family were critical of the decision to make the deceased an involuntary patient. They submitted that Dr Bala as the supervising psychiatrist should have waited until it was clear whether the deceased's suicidal ideation was the product of mental illness rather than behaviour brought on by intoxication.

36. Dr Bala explained that in the context of the deceased having made a second suicide attempt, he had to satisfy himself that the deceased did not have a mental illness and the only way to do that was to have her assessed in an authorised hospital. He could not assess her himself because she was combative and would not agree to stay voluntarily and cooperate with an assessment.[24] There was no indication that she

[21] Ex 1, Vol 1, Tab 17
[22] Ex 1, Vol 1, Tab 22
[23] Ex 1, Vol 4, Tab 8
[24] ts 217-218

could get proper support if she were allowed to go home.[25]

37. It is clear from Dr Bala's testimony that he was sensitive to the potential distress to the deceased by a transfer to Graylands, but he could not risk allowing her to go home. He recognised the situation as a dilemma. He said delaying things would not appear likely to make a difference because of the deceased's adversarial interactions with staff.[26]

38. In my view, the decision to transfer the deceased to Graylands as an involuntary patient was reasonable in the circumstances. The deceased had twice displayed suicidal behaviour within two days, and was entirely uncooperative. She could not be kept involuntarily in Broome Hospital indefinitely, so the only available option was to send her to Graylands.

39. Fortunately, the opening of Mabu Liyan has reduced the need to follow that course with other patients in future. Dr Bala noted that it is a fantastic alternative for patients and family, culturally secure and respectful for Aboriginal patients.[27]

40. After the deceased was reviewed by Dr Nama, she absconded from the hospital with her mother to go to a fast-food outlet, but was found by the driver of a bus from Milliya Rumurra, a drug and alcohol treatment centre. The driver took her and her mother back to the hospital.[28]

41. Dr Levy then took over the deceased's care in the hospital's high dependency unit (**HDU**). Dr Levy informed the deceased of the decision to transfer her to Graylands. She became enraged, screaming and swearing and lashing out. The deceased's mother was

[25] ts 219
[26] ts 231-232
[27] ts 222
[28] Ex 1, Vol 1, Tab 17

also angry and had to be forcibly removed from the hospital.[29]

42. The deceased was physically restrained and Dr Levy administered her intravenous sedatives, namely midazolam, promethazine, droperidol, olanzapine, haloperidol and clonazepam. The deceased soon fell asleep. Dr Levy rang the RFDS to ask for a transfer of the deceased to Graylands.[30]

43. While the deceased was sedated at Broome Hospital, Dr Levy regularly assessed her to balance the risk of too much sedation and too little. He checked her vital signs and checked for signs of snoring and wheezing to make sure that she was easy to rouse. Dr Levy remained at the hospital to look after the deceased until the RFDS had arrived at Broome Airport at about 6.30pm.[31]

44. While the deceased was in Broome Hospital on 12 October 2012, she received 52.5mg of haloperidol, 30mg of midazolam, 100mg of promethazine, 5mg of droperidol, 40mg of olanzapine and 8mg of clonazepam.

45. Of those drugs, haloperidol and midazolam were to be the most relevant. Haloperidol is used to settle agitation without causing as much sedation as drugs such as midazolam, and it takes a relatively long time to wear off. Midazolam is a fast acting sedative that wears off quickly as it is rapidly removed from the body.[32]

46. The deceased was given more sedative medication than the prescribed dosages set out in the WA Country Health Service protocols for sedation for mental health patients, but Dr Levy considered the

[29] Ex 1, Vol 1, Tab 17
[30] Ex 1, Vol 1, Tab 17
[31] Ex 1, Vol 1, Tab 26
[32] Ex 1, Vol 2, Tab 22; ts 120

risks to be less than those associated with the only other alternative: intubation.

47. Intubation of the deceased could have also caused a delay in the RFDS transfer of patients that day.[33] This was so because a patient at Broome Hospital was being treated for a stab injury to the neck which had caused massive blood loss. The patient was intubated following surgical repair of the wounds and arrangements were made with the RFDS to transfer the patient to Perth. There was also a cardiac failure patient who needed to be transferred. The RFDS advised that they were able to take one intubated patient at a time.[34]

48. The RFDS eventually advised that they would transfer the intubated neck injured patient as well as the deceased, but that they could not manage to send the deceased if she were also intubated.[35] A separate aircraft was to be sent for the cardiac failure patient.

FLIGHT TO PERTH

49. The medical crew in the RFDS aircraft comprised Dr Jack Davies and Flight Nurse Joanne Johnson. When they arrived at Broome Hospital on the evening of 12 October 2012, they first went to the emergency department to receive handover of the neck injured patient. Once that was complete, Dr Davies stayed with the patient and Nurse Johnson went to the HDU to assess the deceased. The deceased was settled and sleeping at that time.[36]

50. At the HDU Nurse Johnson saw the deceased's drug chart and remarked to herself that the deceased had already had a significant quantity of drugs. After assessing the deceased, Nurse Johnson asked the

[33] Ex 1, Vol 1, Tab 17
[34] Ex 1, Vol 1, Tab 7
[35] Ex 1, Vol 1, Tab 7
[36] Ex 1, Vol 1, Tab 26

registered nurses in attendance to put long intravenous lines on the cannulas already inserted in each of the deceased's arms and to prepare two 50ml syringes, one of midazolam and one of haloperidol, in order to sedate the deceased on the flight if necessary. She was familiar with both of those drugs. In her experience, haloperidol was prepared in a concentration of 1mg/1ml.[37]

51. Nurse Johnson was unable to remain at the HDU while the syringes were being prepared because she had to return to the emergency department in order to assist Dr Davies with the other patient.[38]

52. Clinical Nurse Andrea Rieusset was the Acting After Hours Nurse Manager at Broome Hospital on the evening of 12 October 2012. She was the senior nurse on duty and oversaw the hospital.[39]

53. At about 7.15pm, one of the registered nurses from HDU, Michael Cock, asked Nurse Rieusset to get more haloperidol from stock for him because he needed 50ml. It is apparent that Nurse Cock was one of the nurses asked by Nurse Johnson to prepare syringes of midazolam and haloperidol for in-flight sedation of the deceased. Nurse Rieusset assumed that the request had come from Dr Davies.

54. Nurse Rieusset queried whether the request was for 50ml or 50mg, because the concentration of the haloperidol kept in stock at Broome Hospital was 5mg/1ml in 1ml ampoules. At that concentration, 50ml would provide 250mg of haloperidol. Nurse Cock confirmed that the request was for 50ml.

55. Nurse Rieusset went to the pharmacy and discovered that the hospital's entire stock of haloperidol was 50mls. According to her, she then contacted Dr Davies by telephone in the emergency department

[37] Ex 1, Vol 1, Tab 26
[38] Ex 1, Vol 1, Tab 26
[39] Ex 1, Vol 1, Tab 12

and offered him 40ml of haloperidol, to which he agreed.[40]

56. In oral evidence Dr Davies said that he did not remember the telephone conversation, and that he thought the described content of the conversation sounded unusual because his practice was always to specify the amount of drugs in milligrams rather than millilitres.[41]

57. Whether or not the conversation took place as described by Nurse Rieusset, and in my view her evidence has a ring of authenticity to it which is supported by her apparently clear recollection of where she understood Dr Davies to be at the time, there is no doubt that Nurse Cock and the other registered nurse in the HDU provided the RFDS crew with a syringe of haloperidol containing 200mg of haloperidol in a 40ml solution and a syringe of midazolam at a concentration of 1mg/1ml and that the syringes were labelled accordingly.[42] The syringes were provided in a bag attached to a monitor which accompanied the deceased to the RFDS aircraft.[43]

58. At about 9.00pm the aircraft left Broome Airport. Dr Davies was located towards the rear of the cabin near the intubated neck injury patient while Nurse Johnson sat near the front with the deceased and a police escort.[44]

59. Before they took off, Dr Davies contacted the RFDS Clinical Coordinator on duty, Dr Brian Collings, at the RFDS Jandakot base to inform him that it may be necessary to transfer the deceased to a tertiary hospital instead of Graylands if she were too sedated for Graylands. He told Dr Collings that he was not planning to give her much sedation in the flight.[45]

---

[40] Ex 1, Vol 1, Tab 12; ts 202
[41] ts 70-71, 74
[42] Ex 1, Vol 1, Tab 12; Ex 1, Vol 1, Tab 26
[43] Ex 1, Vol 1, Tab 26
[44] Ex 1, Vol 1, Tab 26
[45] Ex 1, Vol 2, Tab 26

60. At about 9.20 the deceased became agitated: rearing up in the stretcher, shaking her head and growling. With the help of the police escort, Nurse Johnson and Dr Davies restrained the deceased and Nurse Johnson administered 3mg of midazolam to her. Nurse Johnson testified that she did so under Dr Davies orders, but Dr Davies stated in a report dated 20 February 2013 that he did not advise the use of midazolam at any point in the flight. In oral evidence Dr Davies said that he did not recall authorising or instructing Nurse Johnson to give the deceased midazolam.[46]

61. The deceased settled for a short time, but soon became agitated again. At about 9.40pm she reared up and fought her restraints. Nurse Johnson asked Dr Davies if she should try haloperidol and, according to Dr Davies, he reluctantly agreed for her to administer 2.5-5mg. Nurse Johnson says that Dr Davies told her to 'give her five' which she took to mean 5mg.[47]

62. Nurse Johnson then administered the deceased 5mls of the haloperidol solution, believing it to be 5mg of haloperidol at a concentration of 1mg/1ml as it had always been in her experience. It was actually 25mg of haloperidol.

63. Nurse Johnson said that she would usually check the labelling on a syringe and would get Dr Davies to also check it before administering a drug, but that she did not do either on this occasion because of the urgency of the situation and the fact that Dr Davies was busy attending to the intubated patient.[48]

64. The deceased remained agitated despite the haloperidol, so at 9.55pm Nurse Johnson administered her with an additional 5mls of the haloperidol solution on, according to Nurse Johnson,

[46] ts 85
[47] Ex 1, Vol 1, Tab 26; Ex 1, Vol 1, Tab 25
[48] Ex 1, Vol 1, Tab 26

the instructions of Dr Davies.[49] Dr Davies' evidence noted above contradicted the suggestion that he had instructed Nurse Johnson to administer the second 5mls of haloperidol.

65. After the second injection of haloperidol, the deceased settled. In the relative calm that followed, Nurse Johnson had time to complete her recording of the drugs administered. At this time she discovered that the syringe of haloperidol was labelled 200mg/40ml. She had trouble believing that the label was correct because it meant that someone would have had to draw up 40 ampoules of haloperidol in order to prepare the syringe.[50] She immediately informed Dr Davies that she had administered the deceased with 25mg of haloperidol on each occasion instead of 5mg.[51]

66. Dr Davies moved up the aircraft and assessed the deceased. Her status remained unchanged with little apparent effect from the haloperidol. He advised Nurse Johnson to monitor the deceased closely, but considered that the deceased would be fine.[52]

67. Dr Davies also told Nurse Johnson that she should document the incident as a drug error and that they would need to complete a 'clinical incident form'.

68. At 10.27pm Dr Davies again contacted Dr Collings. He said that the deceased was not suitable for Graylands and would need to go to an emergency department because of '... how she's been on the flight'. He thought that Nurse Johnson may have to accompany her to the emergency department. He made no mention of the excessive dosage of haloperidol. Dr Collings indicated that he would contact Royal Perth Hospital to see if she could be admitted there. [53]

[49] Ex 1, Vol 1, Tab 26; ts 330
[50] ts 333
[51] Ex 1, Vol 1, Tab 26; ts 329
[52] Ex 1, Vol 1, Tab 25; Ex 1, Vol 1, Tab 26
[53] Ex 1, Vol 4, Tab 9

69. Dr Collings then called RPH emergency department and was eventually told that the duty officer there was not happy to accept the deceased because of the expected arrival of other patients. Dr Collings was advised to contact Sir Charles Gairdner Hospital which had an arrangement with Graylands to take in heavily sedated patients.[54]

70. Dr Collings then called the emergency department at Sir Charles Gairdner Hospital and spoke to Dr Ovidiu Pascu. He told Dr Pascu that the RFDS had a 19 year old Aboriginal girl who had two significant attempts in the last week and was brought down from Broome to go to Graylands as an involuntary psychiatric patient, but that she was so sedated that she could not go straight to Graylands.[55]

71. Dr Pascu asked what medications the deceased had been given but Dr Collings was unable to tell him, apart from saying that she had had midazolam and haloperidol in Broome. Dr Pascu asked if Dr Collings knew how sedated the deceased was by reference to the Glasgow Coma Scale, but again Dr Collings could not say.[56]

72. Dr Pascu suggested that Graylands may well be able to manage the deceased. Dr Collings then told him that he would arrange for the deceased to go to Graylands and that if there were problems he would get back to Dr Pascu.[57]

73. In oral evidence Dr Pascu said that if he had been told that the deceased had been given 102.5mg of haloperidol in a 24 hour period, he would have accepted her as a patient because the tranquillisation protocol at the emergency department of Sir Charles Gairdner Hospital stipulates a maximum of 30mg of haloperidol in a 24 hour period. As I understand Dr

[54] Ex 1, Vol 2, Tab 26
[55] Ex 1, Vol 4, Tab 15
[56] Ex 1, Vol 4, Tab 15
[57] Ex 1, Vol 4, Tab 15

Pascu's evidence (the transcript is not complete), he suggested that he would have been concerned of the potential of sudden death from prolonged QT syndrome, which may result from large doses of intravenous haloperidol.[58]

74. The 'QT' or 'Q-T' interval refers to a period shown on an electrocardiogram which reflects the refractory period of the heart. A prolonged QT interval is associated with life-threatening ventricular tachycardia and fibrillation.[59]

75. At 11.53 the duty clinical coordinator at the RFDS base contacted Dr Davies to inform him that the deceased would be going directly to Graylands.[60] A few minutes later, the duty medical officer at Graylands, Dr Liana Suparare, called the RFDS and spoke to Dr Davies to ask about the deceased's level of sedation.[61]

76. Dr Davies told Dr Suparare that the deceased had been given large quantities of sedation in Broome but that she had not been given any further sedation for 'a couple of hours'. He said that they had tried to de-sedate her on the flight but that for the safety of the flight they did give her sedation. He said that the deceased had 'huge amounts' of haloperidol and midazolam. He made no mention of a drug error, nor did he tell Dr Suparare of the amount of haloperidol given to the deceased on the flight.[62]

77. In oral evidence, Dr Suparare said that 50mg of haloperidol is a huge dose and that at Graylands patients are never given more than 30mg in 24 hours because they do not have the facilities to monitor patients with an ECG. She said that medical staff at Graylands are very familiar with haloperidol as an antipsychotic and that she prescribed it herself, but

[58] ts 556; Ex 1, Vol 2, Tab 22; Ex 1, Vol 4, Tab 19
[59] Ex 1, Vol 2, Tab 22
[60] Ex 1, Vol 4, Tab 10
[61] Ex 1, Vol 4, Tab 11
[62] Ex 1, Vol 4, Tab 11

that she would not prescribe more than 20mg in 24 hours.[63] Because of that, she had not had a lot of experience with haloperidol being used as a sedative.[64]

78. Dr Suparare told Dr Davies that she would have to send the deceased to another facility if she were over-sedated. Dr Davies said that he thought the deceased was okay at the moment and that he would check her again.[65]

79. After the deceased had been given the second injection of 25mg of haloperidol she remained stable for the duration of the flight. However, during the final decent and while taxiing on the runway, the deceased became agitated and aggressive.[66]

80. At the terminal, the deceased was transferred to an ambulance. During the transfer Nurse Johnson administered her 2mg of midazolam.[67] Nurse Johnson gave the ambulance paramedics the deceased's file and the RFDS Inflight Observation & Treatment Sheet (**RFDS Sheet**). She told them that she had administered 50mg of haloperidol and showed them where she had recorded that amount on the RFDS Sheet.[68]

AT GRAYLANDS

81. The deceased arrived at Graylands by ambulance at 00.35am on 13 October 2012. She had settled well in the ambulance and, though she was sedated and had slept for the journey, her vital signs were within normal limits and there was nothing unusual about her condition.[69]

[63] ts 382-383
[64] ts 386
[65] Ex 1, Vol 4, Tab 11
[66] Ex 1, Vol 1, Tab 25
[67] Ex 1, Vol 1, Tab 25; Ex 1, Vol 1, Tab 26
[68] ts 332
[69] Ex 1, Vol 1, Tab 27

82. At Graylands, one of the paramedics gave the triage nurse the deceased's paperwork and advised that the deceased was heavily sedated.[70] Dr Suparare went to see the deceased while she was still in the ambulance. The paramedics did not inform Dr Suparare that the deceased had received 50mg of haloperidol during the flight.[71]

83. Dr Suparare could see from a heart rate monitor in the ambulance that the deceased's heart rate was 85. She asked the paramedic to take the deceased's blood pressure. When the paramedic put the blood pressure cuff on the deceased's arm, the deceased started screaming and was abusive, hostile and angry. Her blood pressure was low but within the normal range.[72]

84. Given that the deceased's heart rate and blood pressure were within the normal range, and because she was not only responsive but agitated, Dr Suparare concluded that she was not too sedated to be admitted to Graylands.[73]

85. The deceased was admitted to Pinch Ward at about 1.00am. She was uncooperative with Dr Suparare who was attempting to obtain personal information from her and to conduct a physical examination. Nursing staff and Dr Suparare were able to remove the intravenous lines from the deceased's arms and to remove a urinary catheter despite the deceased's resistance. The urine that had been collected appeared dark, consistent with a urinary tract infection.[74]

86. The deceased was then placed in a room with her mattress on the floor to reduce the risk of her falling off the bed.

---

[70] Ex 1, Vol 1, Tab 27; ts 392
[71] ts 392-393
[72] Ex 1, Vol 1, Tab 28
[73] Ex 1, Vol 1, Tab 28
[74] Ex 1, Vol 1, Tab 28

87. Dr Suparare went to the nursing station to read the RFDS notes and to complete her own notes.[75]

88. Dr Suparare completed a Psychiatric Assessment and Admission Management Plan for the deceased in which she noted, among other things, the deceased's high risk of suicide. In the management plan Dr Suparare directed that the deceased be admitted under the *Mental Health Act 1996*, that she be monitored every 15 minutes for self-harm, and that her respiration rate and if possible her blood pressure be monitored during the night.[76]

89. In reading the RFDS Sheet, Dr Suparare saw the two entries of 'IV Haloperidol 25mg' but took them to mean 2.5mg. She said that, if she was aware that the entries were actually '25mg' she would have sent the deceased for cardiac monitoring because of the risk of the 'QT becoming prominent' and the deceased going into cardiac arrest.[77] She said that if she had been aware that the deceased had received 102.5mg of haloperidol in the 24 hours before arriving at Graylands, she would have said very clearly that the deceased needed to go to a general hospital.[78]

90. It was suggested by Ms Hartley, who appeared for the Health Department and Graylands Hospital, that there were department witnesses available who had taken part in a review of the incident and who would say that in the review the suggestion that the references in the RFDS sheet to 25mg of haloperidol actually meaning 25mg and not 2.5mg was dismissed out of hand as being impossibly high.[79] As I understand it, that evidence if adduced would have provided an explanation for Dr Suparare's reading of the entries incorrectly. Additionally, the witnesses would be able to describe the appearance of the

[75]Ex 1, Vol 1, Tab 28
[76] Ex 1, Vol 4, Tab 1, p88
[77] ts 402
[78] ts 406
[79] ts 404

original document, which would also assist to explain Dr Suparare's reading of it.

91. Neither witness was called to give evidence, but Dr Suparare said that she assumed that the figure was 2.5mg because 25mg of haloperidol is never given.[80] Consistent with evidence given by Nurse Johnson, Dr Suparare said that she did not know what kind of circumstances would require 25mg of haloperidol because you would need to open so many ampoules to give that amount.[81]

92. As to the original RFDS Sheet, after examining the original of the document, I cannot see that it is any different in effect from the copy provided.

93. After Dr Suparare completed the management plan, she did not see the deceased again. At about 9.00am that morning she completed her shift and handed over to the day shift medical officer.

94. The consultant psychiatrist on duty at Graylands on 13 October 2012 was Dr Jayasheerie Nadarajah. At about 9.00am Dr Nadarajah passed through Pinch Ward to check on the deceased with a view to assessing her, but Ward Coordinator Kartik Patel informed her that the deceased was very sedated and sleepy so would not be able to be interviewed. Dr Nadarajah advised staff not to give the deceased any sedatives, but to continue to monitor her and let her have something to eat and drink. Dr Nadarajah planned to interview the deceased in the afternoon.[82]

95. At about 11.30am, Ward Coordinator Patel called Dr Nadarajah to inform her that the deceased had woken up for a few minutes but had gone back to sleep.

96. At about 12.20pm Dr Nadarajah went to Pinch Ward to interview the deceased. She reviewed the

[80] ts 422
[81] ts 423
[82] Ex 1, Vol 1, Tab 29

deceased's case notes in advance, but did not scrutinise the RFDS Sheet at that time. She did become aware of the entries for haloperidol retrospectively but was not sure if they were 25mg or 2.5mg because she had not come across a dosage of 25mg before, and 2.5mg was the usual dose.[83]

97. Ward Coordinator Patel told Dr Nadarajah that the deceased was still sedated and could not be brought to the interview room, so Dr Nadarajah went to her room. The deceased was lying on the mattress on the floor covered with blankets. Two nurses tried to wake her up, but she was asleep and could not be aroused.[84]

98. Dr Nadarajah discussed the deceased's case with Nursing Coordinator Patel. The deceased's observation and response chart indicated that her vital signs were all within normal limits. As Dr Suparare was not able to complete a physical examination of the deceased earlier, Dr Nadarajah advised Ward Coordinator Patel to inform the duty doctor of the need to complete a full physical examination.[85]

99. In the integrated progress notes for the deceased, Dr Nadarajah directed that the deceased's vital signs be monitored and that 15 minute observations continue.

100. During the day shift at Pinch Ward from about 7.00am to 3.45pm on 13 October 2012, the nurses on duty were Ward Coordinator Patel and Nurses Emmanuel Yakani, Ivy Ngu and Ana Hill. The deceased was allocated to Nurse Yakani as one of his patients for the shift. Nurse Hill was the shift Security Nurse, so she was responsible for carrying out observations of each patient and recording the results

[83] ts 459
[84] Ex 1, Vol 1, Tab 29
[85] Ex 1, Vol 1, Tab 29

on a Visual Observations Checklist (**observation checklist**).[86]

101. From 7.15am to 3.15pm an observation checklist for the deceased at 15 minute intervals was duly completed, predominantly by Nurse Hill. For each observation, the nurse who filled it in recorded a respiration rate of 17 (breaths per minute) and recorded that the observation was a visual check and, with one exception at 11.00am, that the deceased was asleep.[87]

102. At about 11.00am the nursing staff had woken the deceased to change her clothes since she had been incontinent of urine. Two female nurses from Dorrington Ward attended to assist. One of the nurses was able to perform physical observations of the deceased; the observations were all in normal range.

103. At about 1.30pm Ward Coordinator Patel observed the deceased to be breathing.[88]

104. At 3.00pm the afternoon shift began. Ward Coordinator Patel stayed on for that shift in the same capacity and Nurse Yakani also stayed on for the afternoon shift. Ward Coordinator Patel gave Nurse Yakani the Security Nurse role.[89]

105. From 3.15pm Nurse Yakani commenced 15 minute observations of the deceased. As with the earlier entries in the observation checklist, at each interval he recorded a respiration rate of 17 observed by a visual check and he recorded that the deceased was asleep.[90]

106. In oral evidence Nurse Yakani said that he did not go into the deceased's room to check on her because, as a matter of practice, male nurses are not allowed to go

[86] Ex 1, Vol 1, Tab 30
[87] Ex 1, Vol 1, Tab 30
[88] Ex 1, Vol 1, Tab 30
[89] Ex 1, Vol 1, Tab 30
[90] Ex 1, Vol 1, Tab 30

into female patients' rooms alone. He said that he stood outside her door and observed her through a window.[91]

107. Nurse Yakani initially said that he would count respirations for 15 seconds and multiply by 4 to arrive at the respiration rate, but when he was asked how he arrived at 17 he began to prevaricate. When pressed, he eventually admitted that it was difficult to see the deceased, so he looked at the observations checklist and saw that her previous respirations were all 17, so he wrote 17.[92]

108. Though he had signed a statement in which he said that the purpose of checking respirations was to check that the patient was alive, in oral evidence Nurse Yakani admitted that his observations were really just confined to seeing that the deceased was not self-harming.[93] When asked whether in hindsight things could have been done differently, he said that if there were a suspicion that the deceased had any medical condition, more intensive observations could have been carried out. He said that just checking on respirations does not indicate whether the patient's condition is deteriorating or not.[94]

109. At 5.00pm Ward Coordinator Patel went to the deceased's room with two female nurses to wake her up and found her cold, unresponsive and not breathing. She was not wearing anything on the top half of her body. He jaw was stiff and her leg was too stiff with rigor mortis to stretch out.[95]

110. Resuscitation was commenced and the Emergency Medical Team arrived in response to a Code Blue call and assisted. Ambulance officers also arrived.

[91] ts 490
[92] ts 491
[93] ts 490-492
[94] ts 491
[95] Ex 1, Vol 1, Tab 30; ts 16

111. One of the ambulance paramedics took the deceased's temperature and noted that it was 32 degrees, indicating that, contrary to Nurse Yakani's entries in the observation checklist, the deceased had died at least one hour, and probably more than two hours, previously.[96] The paramedics also noted signs of rigor mortis, which was also consistent with death having occurred well before 5.00pm.

112. There was no evidence to explain why the deceased was not wearing her pyjama top. Nurse Hill recalled that the deceased was wearing it when she did her final observation at 3.15pm. It may be that the deceased experienced a rise in body temperature as a side effect from the haloperidol and removed her top in order to cool down.[97]

CAUSE AND MANNER OF DEATH

113. Forensic pathologist Dr D M Moss conducted a post mortem examination on 16 October 2012 in which he initially found no evidence of natural causes or injury to account for the death. Extensive further investigations revealed widespread inflammation of numerous sections of the heart, which Dr Moss identified as myocarditis.

114. Dr Moss noted that the existence of myocarditis would provide a possible explanation for death, but he said that most people would be expected to survive the condition. He noted that Professor David Joyce, a clinical pharmacologist and toxicologist, was asked to review the deceased's case with regard to the toxicology results and had provided two reports. He said that Professor Joyce's opinion as expressed in the second of his reports was that 'Overall a drug-related death appears most likely', but Professor Joyce also said that, given the time that had passed since the last dose of haloperidol, it was a surprise for

[96] Ex 1, Vol 2, Tab 4
[97] Ex 1, Vol 4, Tab 20, p10

a death to occur because patients generally become more safe as time goes by and they eliminate the drug. At that stage, Professor Joyce had not been aware of Dr Moss' finding in relation to myocarditis.

115. Professor Joyce prepared three reports overall. In the first, he provided a detailed and comprehensive study of the history of the clinical background and toxicological analysis of the deceased and then addressed the issue of the relationship of the relevant drugs and the cause of death. He concluded that credible explanations for what he understood to be a sudden death included haloperidol-induced cardiac arrhythmia from prolonged QT syndrome and drug-induced upper airway muscle spasm, though both possibilities were rare. Professor Joyce noted that in order to see the death as sudden, we have to accept the observation records. He said that it was important to check on their reliability.

116. For his second report Professor Joyce was provided with further information, including the fact that when found the deceased had a temperature of 32.1°C and that rigor mortis was present. He again referred to the importance of resolving the issue of the observations of breaths per minute between 3.15pm and 5.15pm and said that, if the observations were inadequate, the deceased may have been experiencing failure of ventilation during that period.

117. After being provided with Professor Joyce's first two reports, Dr Moss concluded that the best explanation for the death was the combination of the effect of the drugs and the myocarditis.

118. When provided with the further information of the existence of the myocarditis, Professor Joyce said that Dr Moss' conclusion reflects his own opinion. He went on to say that he could not point to specific pathways of interaction between the drug exposure and the myocarditis.

119. Professor Joyce noted that myocarditis should not increase sensitivity to sedating or respiratory depressant effects of the drugs and that the observations of the deceased at Graylands were largely designed to detect respiratory depression. The observations would not have picked up the fact that the deceased faced a special risk of cardiac death because of an unrecognised underlying disease. He said that arrhythmic death may be sudden and unheralded.

120. Professor Joyce said that he could not see anything in the case files which would have alerted the treating doctors to the presence of myocarditis.

121. I have adopted Dr Moss' and Professor Joyce's common conclusion as to the cause of death; that is, that it was consistent with combined drug effect and myocarditis.

122. It is not possible on the evidence before me to determine whether the medical cause of death was respiratory depression or prolonged QT syndrome, though the information available, including that provided by Professor Joyce, points more to the latter.

123. As to the manner of death, it appears to me that, because the deceased was suffering from an underlying condition which should not have been fatal but for the mistaken administration of an overdose of medication, the appropriate verdict is one of misadventure, and I so find.

COMMENTS ON THE DECEASED'S SUPERVISION, TREATMENT AND CARE

124. It is apparent from the foregoing that the deceased's treatment and care was beset with a series of errors and with failed opportunities to identify and correct the errors, which in sum were catastrophic.

125. The series began with the RFDS's effectively informal request to nursing staff at Broome Hospital for what was understood to be 50ml of haloperidol in one syringe. It was an unusual quantity which should have been by reference to milligrams instead of millilitres or should have at least included reference to milligrams. That, and the fact that haloperidol was kept in 1ml ampoules so that preparing a sizeable quantity of haloperidol would require the drawing up of the drug from a large number ampoules, should have generated a request for clarification by the nurses at the hospital.

126. While Nurse Rieusset queried the request with Nurse Cock and then contacted Dr Davies, she assumed that Dr Davies had made the request and, presumably, that the reference to 50ml was not a matter that she should question. She merely obtained his assent to provide him with 40ml of haloperidol instead of 50ml.

127. The next event was the administration of two doses of 25mg of haloperidol to the deceased by Nurse Johnson with the mistaken assumption that the doses were 2.5mg. She would normally have checked the label on the syringe beforehand and asked Dr Davies to do the same, but the circumstances were urgent and, for the reasons mentioned above, she assumed that the concentration of haloperidol in the syringe was 1mg/1ml.

128. Once she had realised her mistake, Nurse Johnson acted responsibly by immediately informing Dr Davies of her mistake and by entering the dosages administered in the RFDS Sheet. However, she did not highlight that the dosages had been in error. It appears that there was no procedure to do so. Had she done so, there could have been no basis for an assumption that her entries in the RFDS sheet for haloperidol were meant to be 2.5mg .

129. Unfortunately, Dr Davies treated the overdose as one carrying the risk of sedation without, it seems, taking into account the risk of prolonged QT syndrome. He checked the deceased's vital signs and rousability and concluded that she would be fine. Of course, he could not have been aware of the fact that the deceased was also suffering from myocarditis.

130. Nonetheless, Dr Davies contacted his clinical coordinator, Dr Collings, in order to attempt to ensure that the deceased was transferred to a general hospital where she could be monitored until her sedation wore off. However, he failed to notify Dr Collings of either the error or the timing or the quantity of the overdose; instead he downplayed the role of the RFDS in the deceased's sedation.

131. As a result, when Dr Collings called RPH and Sir Charles Gairdner Hospital to enquire whether either of them would admit the deceased, he was not aware of the crucial information. Had he been able to tell the people to whom he spoke of those details, they would have accepted the deceased and she would have received appropriate monitoring.

132. When Dr Davies was contacted by Dr Suparare at Graylands, he again failed to offer that vital information.

133. When the flight had landed and the deceased was being transferred to the ambulance, Nurse Johnson notified the ambulance paramedics of the drug error and pointed out the entries on the RFDS Sheet, but the paramedics did not pass the information along to Graylands staff. It seems that there was no formal procedure to do so apart from the RFDS Sheet.

134. In admitting the deceased at Graylands on 13 October 2012, Dr Suparare noticed the entries for haloperidol in the RFDS Sheet, but believed that they must have been for 2.5mg because a dosage of 25mg 'is never

given' and the standard dose was 2.5mg. As a result, she did not check further.

135. Had Dr Suparare been made aware of the nature of the drug error, she would have ensured that the deceased was sent to Sir Charles Gairdner Hospital to be properly monitored.

136. After the deceased was admitted into Pinch Ward she was treated appropriately until the afternoon of 13 October 2012 when monitoring of her respirations as part of the observations ordered by Dr Nadarajah was not conducted by Nurse Yakani because of his understanding that the sole purpose of the observations was to ensure that the deceased did not self-harm.

137. Had proper monitoring been done, it is possible that deterioration in the deceased's condition may have been detected in time to have prevented her death, but that is somewhat speculative in the absence of certainty about the medical cause of death. If the deceased died from a cardiac arrhythmia, as appears likely, monitoring of her breathing may have not made any difference.

138. While I have no doubt that all of the health professionals involved in the deceased's care carried out their duties in good faith and with the interests of the deceased as their priority, in my view the series of errors and failures detailed above resulted in the deceased being provided with a standard of treatment and care that was well below that which Western Australians have justifiably come to expect from its health services.

COMMENTS ON PUBLIC HEALTH UNDER SECTION 25 (2) OF THE *CORONERS ACT 1996*

139. Are there procedures that could be implemented to reduce the likelihood of a similar tragedy occurring again in similar circumstances?

140. Following the death of the deceased, Director of Medical Services of the RFDS, Dr Stephen Langford, issued an operational circular to all medical officers and flight nurses urging caution with drug treatment in mental health patients.[98]

141. Dr Langford warned that prolonged QT interval from antipsychotics such as haloperidol and droperidol can lead to cardiac arrhythmias and death, and he noted the WA Country Health Service's recommended maximum doses of sedatives and antipsychotic medications, which included 20mg over 24 hours for haloperidol. The circular explains the QT interval with the help of a diagram.

142. Dr Langford made the following recommendations in the circular:

a) obtain a comprehensive summary of all drugs and doses administered to a patient before handover to RFDS. Review the totals and seek advice if the daily maximums have been reached;

b) endeavour to limit the use of drugs to these maxima. Exceed the limits only with careful consideration of risks and benefits to the patient;

c) adequately monitor all patients during transport. Where possible include some ECG monitoring and review the QT interval. Get a temperature for reference in the event of aspiration pneumonitis diagnosed in Perth;

[98] Ex 1, Vol 4, Tab 3

d) if QT prolongation is detected, implement cardiac monitoring;

e) where patients appear to have exceeded the recommended daily maximums, notify the receiving authorised hospital in advance that the patient warrants a full medical assessment, including 12-lead ECG, on arrival; and

f) clearly document the total doses of each drug the patient has received, prior to and during transport, on the Obs chart and discuss this at handover.

143. In written submissions provided on behalf of Graylands, Ms Hartley referred to a root cause analysis done at the Broome Hospital, which resulted in:

a) the development by the WA Country Health Service of a revised inter-hospital transfer form to include information specific to sedated psychiatric patients, including the total doses of sedative medication given in the last 24 hours; and

b) the implementation in Kimberley hospitals of a requirement, following a request from RFDS staff for drugs, for prescriptions to be written on the hospital medical chart and to be signed by an RFDS or hospital doctor, and for the drugs to be prepared by an authorised hospital staff member in the presence of a RFDS staff member.

144. A root cause analysis of the deceased's death was also conducted at Graylands.[99] The recommendations resulting from the investigation were for:

a) development of a revised handover document with a field for total doses of medication;

[99] Ex 1, Vol 4, Tab 20

b) education to increase clinical staff awareness of the need for patients who receive more than 20mg of haloperidol or droperidol within 24 hours to have ECG and monitoring;

c) processes to be put in place for labelling and handover of medications;

d) the sedation policy and guidelines to be updated, and training to be provided to increase clinical staff awareness of the sedation policy and the use of sedatives along with high potency psychotropics; and

e) staff education in responses to critical incidents where an error has occurred.

145. The Nurse Director at Graylands, Robina Cairns-Stewart Redknapp provided evidence with respect to improvements that have been made at Graylands in recent years. Relevant to the deceased's care, Nurse Director Redknapp indicated that a revised curriculum for clinical observation training was rolled out at all mental health in-patient units within the North Metro Mental Health Services. She said that clinical observations was considered to be a high risk area that required a proper training curriculum to ensure that people were fully aware of their roles and responsibilities under the relevant policy.[100]

146. I am satisfied that those changes and recommended improvements will, if effectively implemented, reduce the chances of a similarly preventable tragedy from happening again. I suggest that other health services adopt them if they have not done so already.

CONCLUSION

147. Dr Bala told the Court that he feared for the wellbeing of Aboriginal people in Broome who were referred to

[100]General evidence ts 24

Graylands as involuntary patients. He said that the sedation and transfer made for a perilous situation in which people can get all sorts of medical problems and end up in intensive care units with significant morbidity. They are traumatised from being away from country, sometimes for the first time in their lives, so he and the staff in the KMHDS do all they can to keep them out of that situation.[101]

148. The tragedy that befell the deceased demonstrates the reality behind the fear.

149. As a result of the death, several changes have been made to training and procedures that should preclude another death occurring in similar circumstances, but that is likely to be little comfort to the deceased's family.

B P King
Coroner
11 April 2014

[101] ts 230