MAGISTRATES COURT TASMANIA

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CORONIAL DIVISION

Record of Investigation into Death (Without Inquest)

Coroners Act 1995
Coroners Rules 2006
Rule 11

I, Leigh Mackey, Coroner, having investigated the death of Vicki Elizabeth Dow

Find, pursuant to Section 28(1) of the *Coroners Act* 1995, that

a) The identity of the deceased is Vicki Elizabeth Dow. Mrs Dow was born in Sydney in 1954 and was 69 years of age at the time of her death. She moved to Hobart in Tasmania in 1979, settling in Lindisfarne, with her husband, David, with whom she had two children, and where she worked as a teacher. In 2002 David died. Mrs Dow continued working until her retirement in 2019. At the time of her death she lived alone and independently in Geilston Bay.

b) Mrs Dow had a complex medical history. She was diagnosed with myelodysplastic syndrome (MDS) with ring sideroblasts in 2020. MDS is a group of disorders caused by blood cells that are poorly formed or don't work properly. Symptoms of MDS include anaemia, infection, and bleeding. MDS can be a precursor to the development of myeloid leukaemia or bone marrow failure. Sideroblasts are erythroid precursors[1] with iron laden mitochondria forming a perinuclear ring and are commonly seen in patients with MDS. MDS with ringed sideroblasts are thought to be less likely to develop into untreatable bone marrow disorders.[2]

   Mrs Dow was under the specialist care of a haematologist and received regular blood transfusions to treat her MDS. She commenced receiving blood transfusions from 2 August 2021. From mid-2020 Mrs Dow participated in a drug trial, "Fribrogen MDS randomised Roaxadustat versus Placebo" for the treatment of patients with low risk MDS.

   Mrs Dow required transfusions for anaemia and as such she was at risk for developing iron overload. There is not an exact correlation between the

[1] Nucleated cells in bone marrow that develop into a red blood cells.
[2] Report Dr Bell dated 21 February 2024 page 5.

number of transfusions required for the development of iron overload.[3] It is accordingly a matter of clinical judgement when to test a patient receiving blood transfusions for iron overload. Patients receiving transfusions are typically monitored using serum ferritin levels and liver and cardiac magnetic resonance imaging (MRI).[4]

A consequence of iron overload is to saturate the iron binding protein transferrin beyond capacity causing iron to bind to other proteins and molecules which in turn can cause tissue damage, inflammation, and fibrosis.[5] The treatment for iron overload is chelation therapy. The aim of chelation therapy is to balance iron intake from transfusions with iron excretion by chelation. Chelation medications are used to prevent iron overload and to maintain safe iron levels in a patient.[6] When the level of iron is unsafe the goal of iron chelation changes from maintenance to rescue and the dosage increases.[7] Chelation therapy is not quick acting and cannot rapidly lower iron stores in the body.[8]

In the weeks prior to her death Mrs Dow was experiencing frequent falls due to low blood pressure. This was being monitored by her general practitioner and haematologist. She had also experienced significant weight loss of 20 - 25 kg over the previous year. From 16 February 2022 the option of iron chelation treatment was raised by Mrs Dow's haematologist. Mrs Dow elected to defer iron chelation as she was "keen to minimise tablet 'burden'".[9] On 13 April 2022 ferritin levels were at over 3000 micrograms/litre but it was noted that at that time the levels were difficult to interpret due to Mrs Dow's reconditioning post hip replacement surgery which elevate serum ferritin levels. Chelation therapy continued to be deferred.

By March of 2023 there were concerns regarding Mrs Dow's condition. At that time, her haematologist noted her ferritin continued to be at 5000 micrograms/litre and an echocardiogram showed features consistent with iron overload cardiomyopathy.[10] A bone marrow biopsy excluded MDS

[3] Report Dr Bell dated 21 February 2024 page 4.
[4] Report Dr Bell dated 21 February 2024 page 4.
[5] Report Dr Bell dated 21 February 2024 page 4.
[6] Report Dr Bell dated 21 February 2024 page 4.
[7] Report Dr Bell dated 21 February 2024 page 5.
[8] Report Dr Bell dated 21 February 2024 page 5.
[9] RHH records letter Dr Murphy to Dr Bleach dated 16 February 2022.
[10] RHH records letter Dr Murphy to Dr Bleach dated 3 March 2022.

transformation to acute leukaemia. CT and PET scans were unremarkable. By this time iron chelation therapy had commenced.

Shortly prior to her death Mrs Dow experienced abdominal pain and jaundice and was referred by her general practitioner to the emergency department of the Royal Hobart hospital (RHH) 8 June 2023. At the RHH she was diagnosed with a perforated gall bladder and underwent a cholecystectomy and cholangiogram on 9 June 2023. At surgery, her liver was noted to be enlarged. Mrs Dow did not regain consciousness following surgery. She experienced heart arrythmias during surgery which continued after surgery requiring four cardioversion/shocks. She was sent to the Intensive Care Unit at the RHH and kept under sedation. Her condition deteriorated and in consultation with her family the decision was made to cease her ventilation and treatment. Mrs Dow died shortly after as a result of multiple organ failure due to secondary haemochromatosis (transfusion associated iron overload), noting MDS with ringed sideroblasts.

c) Mrs Dow was examined at autopsy by forensic pathologist Dr Ritchey. The autopsy revealed the recent cholecystectomy as having been performed, in Dr Ritchey's opinion, without complication, a cirrhotic liver and congestive centrilobular necrosis (likely due to congestive cardiac failure) and acute tubular necrosis of the kidneys (likely a complication of liver failure).[11] Dr Ritchey concluded that the cause of death was multiple organ failure. I accept his conclusion. Microscopic examination of the liver and heart confirmed florid iron overload which he found was the result of repeated red blood cell transfusions which Mrs Dow had required for her MDS. Dr Ritchey noted that iron is toxic to tissues and its accumulation often results in organ failure especially in the heart and liver and I find that this is what has happened to Mrs Dow resulting in her death.

d) Mrs Dow died on 11 June 2023 at Hobart, Tasmania.

In making the above findings I have had regard to the evidence gained in the investigation into Mrs Dow's death. The evidence includes:

- The Police Report of Death for the Coroner;
- Tasmanian Health Service Death Report to Coroner;
- Affidavit as to identity;

[11] Affidavit of Forensic Pathologist, Dr Donald MacGillivray Ritchey sworn 28 September 2023.

- Affidavit of Forensic Pathologist, Dr Donald MacGillivray Ritchey MD, MSc, American Board Pathology (Anatomic, Clinical and Forensic Pathology), FRCPA sworn 28 September 2023;
- Affidavit of Neil McLachlan-Troup, Forensic Scientist, sworn 19 September 2023; and
- Report from Medical Advisor to the Coronial Division, Dr Anthony Bell MD FRACP FCICM dated 21 February 2024.

Comments and Recommendations

I have been assisted by the report of Dr Anthony Bell MD FRACP FCICM, Medical Advisor to the Coronial Division, who has considered Mrs Dow's medical records. Dr Bell has identified that "a number of lessons can be learnt" from Mrs Dow's death.[12] Specifically he notes that on 31 July 2021 Vicki deferred iron chelation therapy despite indications of iron overload including an abnormal echocardiogram. As a result chelation therapy was not commenced until 19 months later, 11 December 2022. By that time iron binding protein transferrin saturation had been at approximately 100% for "years" and Mrs Dow had received 19 units of packed red blood cells by transfusion. The delay in commencing chelation therapy was a "lost opportunity" to decrease her risk of tissue and organ damage from iron overload.[13]

In addition, liver function tests conducted at the RHH on 9 June 2023 were noted by the gastroenterologist team as inconsistent with cholangitis[14] and consistent with cholecystitis.[15] Dr Bell notes that if this had been picked up by the emergency and/or surgical teams at the RHH there may have been an earlier more urgent progression to ultrasound and surgery. However, given the extent of damage to Mrs Dow's liver, heart and her acute renal failure an earlier progression to surgery was unlikely to have altered the outcome.[16] Finally Dr Bell notes that in response to the cardiac arrythmias experienced by Mrs Dow during and post-surgery at the RHH there was no "clear delineation" of them nor treatment started in response. The use of amiodarone, as was later instituted in the ICU was at that time indicated.[17] Ultimately, in what was a complex medical case Dr Bell concludes Mrs Dow's medical management at the RHH was to a reasonable standard. Whilst her iron overload

[12] Report Dr Bell dated 21 February 2024 page 5.
[13] Report Dr Bell dated 21 February 2024 page 5.
[14] Inflammation of the bile ducts usually caused by gallstones or bacterial infections.
[15] Inflammation of the gall bladder.
[16] Report Dr Bell dated 21 February 2024 page 5.
[17] Report Dr Bell dated 21 February 2024 page 5.

which was a significant cause of her death could have been managed better, Mrs Dow had not agreed with the plan to do so.[18] I accept his opinion in this regard and find accordingly.

The circumstances of Mrs Dow's death are not such as to require me to make any recommendations pursuant to Section 28 of the *Coroners Act* 1995.

I convey my sincere condolences to the family and loved ones of Mrs Dow.

Dated: 23 April 2025 at Hobart, in the State of Tasmania.

Leigh Mackey
Coroner

[18] Report Dr Bell dated 21 February 2024 page 5.