MAGISTRATES COURT *of* TASMANIA

CORONIAL DIVISION

# Record of Investigation into Death (Without Inquest)

*Coroners Act* 1995
*Coroners Rules* 2006
*Rule* 11

I, Robert Webster, Coroner, having investigated the death of Michael Graeme Nalder

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

a) The identity of the deceased is Michael Graeme Nalder ("Mr Nalder");

b) Mr Nalder died as a result of pulmonary thrombo-emboli following coronary artery bypass grafting for ischaemic heart disease; and

c) Mr Nalder's cause of death was pulmonary thrombo-emboli; and

d) Mr Nalder died on 11 April 2019 at Hobart, Tasmania.

In making the above findings I have had regard to the evidence gained in the comprehensive investigation into Mr Nalder's death which includes:

- The Police Report of Death for the Coroner;
- Royal Hobart Hospital (RHH) Death Report to the Coroner;
- File note of First Class Constable Alisha Barnes, Coroner's Associate detailing her conversation with the senior next of kin Mr Nigel Nalder;
- Affidavits establishing identity and life extinct;
- An affidavit of the forensic pathologist, Dr Christopher Lawrence;
- Toxicological and analytical report prepared by Mr Neil McLachlan-Troup, forensic scientist, of Forensic Science Service Tasmania;
- Report of Dr Anthony Bell MBBS MD FRACP FCICM, Coronial medical consultant;
- Medical records and reports obtained from the RHH; and
- Medical records and reports obtained from the Latrobe Family Medical Practice.

**Background**

1. Mr Nalder was aged 63 years, single and retired at the date of his death. He never married nor did he have any significant relationships or any children during his lifetime. Mr Nalder was one of four children to his parents. His mother passed away in 1989 from emphysema and his father passed away in 1999 as a result of bowel cancer. Mr Nalder had an older brother, Nigel, and a younger brother, Ian, who sadly passed away in a motor vehicle accident in 1981. Mr Nalder also had a sister, Linda. From 1966 the Nalder family grew up in Moriarty just outside of Latrobe on the north-west coast of Tasmania. Mr Nalder had a normal, happy childhood and spent time playing football and bowls. From the age of approximately 16 he was playing premier league bowls. He played bowls up until approximately ten years prior to his death. Mr Nalder is described by his brother Nigel as a quiet and reserved individual.

2. Mr Nalder worked, with his brother Nigel, for Telstra for 30 years before he was made redundant. He worked as a linesman. Following his redundancy, Mr Nalder opened a takeaway food business which failed. As a result he lost his house and superannuation. He subsequently worked as a taxi driver. After losing his house, Mr Nalder went to live with Gregory and Shirley Douce in Latrobe. Mr Nalder and Mr Douce were very close childhood friends. In 2013, Mr Nalder lost his big toe due to diabetes and Mrs Douce became his carer. At the time of his death Mr Nalder saw his brother, who lived close by, once every couple of months.

**Medical history**

3. I have examined the medical records provided by the RHH and Mr Nalder's general practitioner. They are voluminous. The records of the general practitioner cover a period of 18 years from March 2001 through to March 2019. Mr Nalder has an extensive medical history. Between 2001 and 2008, Mr Nalder visited his general practitioner regarding sinusitis, acute bronchitis, lower respiratory tract and urinary tract infections, epigastric pain, depression, gastro-oesophageal reflux, gastroenteritis, erectile dysfunction, hypertension, and back pain. Mr Nalder suffered a back injury at work in 1976 and a further back injury in or about 1996. He suffered a number of flare ups of back pain over the years. In 2003, he was diagnosed with Type II diabetes mellitus although there was a concern he had diabetes as early as 2001. In 2008, his diabetes was said to be *'poorly controlled.'* Between 2009 and 2013, there were a number of referrals for diabetic management.

4. In 2013**,** Mr Nalder suffered an infection of his right foot due to his diabetes. The infection was severe and did not resolve. Accordingly, on or about 10 April 2013, he underwent an amputation of the right big toe at the metatarsophalangeal joint which is the joint at the base of the big toe.

5. In March 2014, Mr Nalder began to have issues with his gallbladder which included cholelithiasis (the formation of gallstones). He underwent a cholecystectomy whereby his gallbladder was removed on 13 May 2014. Also in that year he underwent an ultrasound of the right leg in June to rule out deep vein thrombosis and in September he had a CT scan of the brain due to left arm numbness and weakness, and an ultrasound of the carotid arteries. No abnormalities were detected on the CT scan but the ultrasound detected mild atheromatous disease (the accumulation of plaque on the walls of an artery) on both sides.

6. In March 2015, Mr Nalder had a CT scan to determine the cause of haematuria together with right facial numbness and asymmetry, left facial droop and headaches on the left side. No kidney stones, which were thought to be the cause of the haematuria, were discovered and no abnormalities were detected on the CT scan to the head.

7. In August 2015, Mr Nalder was diagnosed with postherpetic neuralgia which is the most common complication of shingles. The condition affects nerve fibres and skin, causing burning pain that lasts long after the rash and blisters of shingles disappear. The chickenpox (herpes zoster) virus causes shingles.

8. In February 2016, Mr Nalder was suffering from memory loss. It was thought he may have suffered a cerebrovascular accident, that is, a stroke, and he therefore underwent a scan. The results of that scan were thought to indicate early atrophy otherwise no other abnormalities were detected. In May he underwent an ultrasound to determine the cause of a right-sided chest lump and in August he underwent an x-ray and ultrasound of the right foot which showed small vessel arterial disease in the calf with possible occlusion of the distal peroneal and posterior tibial arteries. In October of that year Mr Nader was suffering from a diabetic ulcer under his second right toe.

9. In January and December 2017, further radiology was performed with respect to pain in the left hip, shoulder and lower back which were caused by a fall from a ladder in January of that year. There were no fractures but he did have mild degeneration in the

upper lumbar spine and calcific tendinopathy subscapularis. In October of that year Mr Nalder underwent a colonoscopy.

10. In July 2018, Mr Nalder's right foot again became problematic due to the effects of his unstable diabetes. Mr Nalder developed streptococcus and staphylococcus infections of his right foot and eventually he developed sepsis in January 2019. He was hospitalised for 14 days due to this condition. Mr Nalder was treated in hospital and discharged with appropriate medications.

11. In August 2018, Mr Nalder underwent a transthoracic echocardiogram. The notes record that as at 1 October 2018 he was planning to have an angiogram. On 1 November 2018 he underwent an echocardiogram with a follow-up appointment booked with a cardiologist on 28 November 2018. On that day the cardiologist contacted the general practitioner and advised that Mr Nalder had severe coronary artery disease. Mr Nalder was advised he would need coronary artery bypass graft surgery. At his last consultation with his general practitioner Mr Nalder advised he was going to Hobart for a preassessment cardiac 'work up'. At this consultation Dr Buchanan suggested that after the surgery Mr Nalder return for a diabetes review.

**Circumstances of Mr Nalder's death**

12. Mr Nalder was admitted to the RHH on 2 April 2019 for double bypass surgery. This elective surgery was organised because of the diagnosis of coronary artery disease in November 2018.

13. The surgery was performed without complications and Mr Nalder was recovering as expected in the intensive care unit (ICU) of the RHH. He was slightly delirious post-surgery but this did not raise any concerns. Mr Nalder was transferred out of the ICU to the Critical Coronary Care unit on the evening of 10 April 2019.

14. On the morning of 11 April 2019, Mr Nalder had been up out of his bed and he appeared to be recovering well. At 10.00am a 'Code Blue' was called for Mr Nalder as he suffered a cardiac arrest and required immediate medical attention. Mr Nalder received asystolic and cardiopulmonary resuscitation for approximately 45 minutes before being declared deceased at 10.45am. Prior to 10.00am his heart rhythm was being monitored and the readings were normal.

15. Mr Nalder's death was referred to the Coroner because it was classified by medical staff at the RHH as 'unexpected' following his surgery.

**Investigations**

16. The Forensic Pathologist, Dr Lawrence, performed a post-mortem examination on 12 April 2019. As a result of that examination Dr Lawrence said the following as to Mr Nalder's cause of death:

> *"This 63-year-old man, Michael Graeme Nalder, died as a consequence of pulmonary thrombo-emboli following coronary artery bypass grafting for ischaemic heart disease. Other significant conditions include morbid obesity and Type II diabetes… Post operatively he had some respiratory compromise. He was taken to ICU and recovered. He was in the ward and collapsed suddenly. Autopsy reveals bilateral pulmonary emboli which was the immediate cause of death. There is also evidence of severe ischaemic heart disease. The grafts appear to be functioning adequately although they are fairly distal.*

17. Dr Lawrence did not find that there was any toxicological cause for respiratory compromise. I accept the opinions of Dr Lawrence set out in paragraph 16.

18. Mr McLachlan-Troup's toxicological and analytical report identifies the presence of multiple drugs in the blood samples which were analysed. These drugs were at therapeutic and sub therapeutic levels. The drugs which were identified are consistent with those which were prescribed while Mr Nalder was an impatient at the RHH and those which were administered by hospital staff during the Code Blue. I accept the opinion of Mr McLachlan-Troup.

19. Because Mr Nalder died unexpectedly following cardiac surgery I arranged for the medical consultant to the Coronial Division of the Magistrates Court, Dr Anthony Bell, to examine the treatment which Mr Nalder received in the RHH. Dr Bell noted a past history of Type 2 diabetes mellitis in 2003 and neuropathy and nephropathy in 2018, gastro-oesophageal reflux disease (GORD) in 2003, and hypertension and hypercholesterolaemia in 2005. The amputation of the great right toe in 2013 is noted as is the echocardiogram in 2018 which found normal heart function but ventricular tachycardia (VT) which was not sustained. Dr Bell notes two episodes of pulmonary oedema in 2018 and findings in 2018 of coronary artery disease: left anterior descending artery (LAD) stenosis 90%, right coronary artery diffuse disease 80% stenosis proximal, more distal 90% and 95% stenoses. Dr Bell also noted Mr Nalder was morbidly obese with a body mass index of 45. Mr Nalder was prescribed two medications for his diabetes, two for his coronary artery disease, two for hypertension, another medication for VT prevention, a medication for his

hypercholesterolaemia and medication for GORD. In addition he was prescribed medication for neuropathic pain and two drugs for a chronic leg ulcer.

20. Dr Bell says during the surgery two bypass grafts were placed, to the LAD and right coronary arteries. He says Mr Nalder was stable post operatively and followed the post-operative pathway. On 5 April 2019 at 1.50pm, the medical emergency team (MET) was called for decreased conscious state and hypoxia. He recovered with naloxone (an opiate antagonist) and was considered to have an iatrogenic opiate overdose. At 6.20pm a further MET call was made due to hypoxia. Mr Nalder was then transferred to ICU where it was considered he had delirium which led to difficulties delivering oxygen on the ward. Oxygen was provided and the hypoxia resolved. The delirium was treated with orientation and haloperidol. By 7 April 2019 Mr Nalder had improved and was orientated. The next day there was an episode of atrial fibrillation and the sternal wound was noted to be oozing. An ECG showed inferior wall minor ST segment changes. The troponin level was falling. Mr Nalder continued to improve. An assessment on 10 April 2019 found him in atrial fibrillation with a controlled ventricular rate. He was transferred to the ward. On 11 April 2019 at 10.00am Mr Nalder suffered an asystolic cardiac arrest. A bedside echocardiogram did not show an effusion. He could not be resuscitated.

21. Dr Bell says venous thromboembolism (VTE; deep venous thrombosis and pulmonary embolism (PE)) is common post operatively with over half the population at moderate risk for VTE. It is a common preventable cause of death. Many procedure related factors contribute to the risk of VTE including the extent and duration of surgery, intraoperative positioning, the type of anaesthesia and post-operative mobility. Generally speaking the highest risk is in those undergoing major surgery; that is surgery lasting longer than 45 minutes, abdominal and thoracic cavity surgery, prolonged surgery greater than or equal to two hours in length, emergency rather than elective surgery, post-operative immobilisation of four or more days as well as critically ill patients who are confined to bed.

22. Several studies have identified VTE rates up to 1% in the cardiac surgery population but older studies suggest higher rates of up to 25% in the absence of prophylaxis. The Atherosclerosis Risk in Communities and the Cardiovascular Health Study found an increased risk of first episode VTE with obesity. The hazard ratio was 2.7 for a body mass index in excess of 40. Studies have also shown that in patients with a BMI over 40, increasing the heparin dose does not affect the rate of PE.

23. In this case Dr Bell says Mr Nalder received VTE prophylaxis with unfractionated heparin with the initial dose administered the night before surgery and continued until the day after surgery. The dose was 5000 units subcutaneously three times per day. On the day of surgery Mr Nalder anticoagulated for cardiopulmonary bypass. The heparin continued for the entire hospital admission.

24. Dr Bell concludes by saying the following:

> *"The patient died of a pulmonary embolism following cardiac surgery. The patient was treated with appropriate measures to try and prevent VTE. There are no medical issues."*

I accept Dr Bell's opinion.

**Comments and Recommendations**

25. The circumstances of Mr Nalder's death are not such as to require me to make any comments or recommendations pursuant to Section 28 of *the Coroners Act* 1995.

26. I extend my appreciation to my associate First-Class Constable Barnes for her co-ordination of the investigation in this matter.

27. I convey my sincere condolences to the family and loved ones of Mr Michael Nalder.

**Dated:** 2 August 2023 at Hobart in the State of Tasmania.

**Robert Webster**

**Coroner**