CORONERS COURT
OF NEW SOUTH WALES

Inquest:	Inquest into the death of RW
Hearing dates:	24 – 27 October 2022
Date of findings:	1 December 2022
Place of findings:	Lidcombe
Findings of:	Magistrate Kennedy Deputy State Coroner
Catchwords:	CORONIAL LAW – Unfractionated Heparin compared to Enoxaparin for prevention of DVT, police operation, police pursuit for mental health welfare concern, care and treatment at Royal North Shore Hospital
File number:	2021/00006045
Representation:	Ms Palmer Counsel assisting the Coroner with Ms Lilly Solicitor instructing Mr Hood of Counsel with Mr Robinson solicitor instructing on behalf of New South Wales Commissioner of Police Ms Kumar of Counsel with Ms Smith Instructing on behalf of Northern Sydney Local Health District Mr Saunders of Counsel with Ms Brown solicitor instructing on behalf of Dr Zhou

Findings:	***The identity of the deceased*** The deceased person was RW ***Date of death*** 7 January 2021 ***Place of death*** Royal North Shore Hospital, St Leonards New South Wales ***Cause of death*** RW's death was caused by pulmonary thromboembolus as a result of bilateral deep vein thrombosis which developed after treatment for a self-inflicted intentional motorcycle collision, on the background of chronic ischaemic heart disease. ***Manner of death*** Complications following medical procedures following an intentionally self-inflicted motorcycle accident causing injury.
Recommendations	Nil
Non-Publication Orders	A non-publication order was made pursuant to section 75 of the Coroners Act 2009 in relation to any matter that identified the deceased and their family Non-publication orders prohibiting publication of certain evidence pursuant to section 74of the Coroners Act 2009 have been made in this Inquest. A copy of these orders, and corresponding orders pursuant to section 65 of the Act, can be found on the Registry file.

Table of Contents

Introduction: 1
The Inquest: 2
A. Reflection on the life of RW 2
History of mental health 3
B. Events of 28 November 2020 3
Actions of NSWPF Officers 5
The Evidence: 10
Appropriateness of medical care 10
Intentionally self-inflicted and/or precipitated by a mental health episode 25
Autopsy Report 25
Findings required by s81(1) 26

Introduction:

---

1. This is an Inquest into the death of Mr RW. He was the much-loved partner of Ms SW and is greatly missed. He was a person struggling with psychological health issues when on 28 November 2019 the motorcycle he was riding collided with a tree, and as a result he suffered a serious head injury. Police were at the time pursuing him, as they were responding to a report for concern his welfare.

2. Following the collision, he was airlifted to Royal North Shore Hospital and underwent emergency surgery to relieve pressure in his skull. He was diagnosed with traumatic brain injury and facial and orbital fractures. He was in the intensive care unit for 10 days.

3. He underwent treatment and had reached the point of medical stability and improvement and he was awaiting a bed in a neurological rehabilitation facility. He quite suddenly collapsed and soon became unconscious; he could not be revived.

4. This Inquest considered the care and treatment of RW while at Royal North Shore Hospital. This was a mandatory Inquest given the initial involvement of a police operation leading to his injury, therefore the conduct of the police operation was considered. This is an important role for the Coroner to consider pursuant to the Act and is necessary and proper to explore. His wife of many years Ms SW also raised issues in relation to the hospital treatment which was also explored.

5. The Inquest is to assist in answering section 81 of the Coroners Act 2009 (NSW). It is to make findings as to:
   1) the identity of the deceased;
   2) the date and place of the person's death; and
   3) the manner and cause of the person's death.

6. The factors that were explored in these proceedings were:

(i) whether RW's collision with a tree in McCarrs Creek Reserve on 28 November 2020 was intentionally self-inflicted and/or precipitated by a mental health episode.

(ii) whether the manner of driving by NSWPF officers, both to the location where RW was reported to be, and in response to RW apparently ignoring their direction to stop, was appropriate and in accordance with the applicable policies and procedures. Whether the Safe Driving Policy were complied with by Constable Krechkin and Constable Watson in the course of their pursuit of RW; and

(iii) whether the medical treatment and medication RW received at RNSH was appropriate given the known risk of DVT for a patient in RW's condition.

7. An important function under the Coroners Act is created by section 82, which empowers a Coroner to make any recommendations they consider necessary or desirable to make in relation to any matter connected with RW's death.

The Inquest:

A. Reflection on the life of RW

8. RW was born in Stapleforth in England, United Kingdom. He migrated to Australia with his father and identical twin brother, PH when he was 17 years old. His mother and two other brothers remained in the United Kingdom.

9. In 2003, RW married his wife Ms SW. From the family statement given by Ms SW this was an amazing match. They were so happy together, they shared so many passions, such as animal protection and in particular care for dogs. Ms SW still has two of their rescue dogs saved by them. They loved to travel together and share adventures. It was clear from the photos and words that they were a very close team. RW adored Ms SW, and strove to protect her and care for her. At the time of RW's death, RW was self-employed. He made money trading on the stock market and buying and selling second-hand kayaks. Ms SW assisted RW with his business ventures.

10. RW suffered from high blood pressure, for which he was prescribed medication, and chronic ischemic heart disease. He suffered a heart attack approximately five years prior to his death and underwent surgery, which involved two stents being inserted into his coronary artery.

11. RW was allergic to penicillin and had previously been prescribed Vytorin and Zircol. Medical records indicate that RW drank a bottle of wine per day. RW had reportedly increased his alcohol consumption over the 12-24 months preceding his death. At the time of his death, RW was prescribed a range of medications, including medication to stabilize his mood and blood pressure.

History of mental health

12. RW had a significant mental health history. In 1982, RW spent time in a psychiatric facility.

13. Around 2017, RW was formally diagnosed with depression and prescribed anti-depressant medication. He took this medication for two weeks before ceasing due to its side effects.

14. RW also had a history of self-harm, experienced frequent mood swings, and had previously spoken about committing suicide. He was passionate about helping animals and wanted to donate extensively to causes that supported them. However, RW was troubled that at age 64 his time to give this assistance was running out. This speaks volumes of the person that he was, and the strong commitment and passion for the care of animals. Ms SW describes their time together as full of adventure and fun. She described RW's personality being that of a comedian with a Monty Python style sense of humour.

15. In the days just prior to 28 November 2020, RW was working very hard trading on the stock market during the day and travelling to collect kayaks during the evenings. There was also some financial pressure felt by RW at this time.

B. Events of 28 November 2020

16. On the morning of the collision, RW became distressed after receiving an email from two friends based in the UK. The email said, "You don't practice (sic) what

you preach, you need to look after yourself and not work so hard". RW interpreted the email as saying that he was a hypocrite. He said to Ms SW: 'Why did PH die, and not me?'. Ms SW also suspected that RW had been drinking during the day, as she observed an empty wine glass sitting in the house. That afternoon, RW was not himself, and wanted to return home instead of completing a task that they needed to undertake. Once they arrived, RW left the house on his motorcycle. Ms SW suspected that RW intended to harm himself so she drove to several locations she thought he might visit. It was clear that this was not the first time Ms SW worried over him, although this time was different. It was far more serious.

17. Around 2.30-3pm, RW arrived at Duck Holes Entry Station on West Head Drive at Ku-Ring-Gai Chase National Park. He spoke with a Visitor Services Assistant and they had a lengthy conversation, she thought he was a very nice English gentleman, and that he was quite kind.

18. RW called his friend after this time and asked him to promise to look after Ms SW.

19. RW then went and purchased a bottle of wine from the Waterfront bottle shop at Pittwater Road. RW returned to Duck Holes Entry Station and had another conversation with the same assistant, who believed that he said to her, "Tell Daisy I love her". She most likely misheard him, he likely said "Tell SW I love her". She questioned him as to why they were having that conversation. RW replied, "Don't worry" and rode into the park. Being a caring and proactive community member she then contacted the ranger to express her concern. The ranger then actively contacted the police. These members of our community should be thanked for their community participation in trying to help someone in need. At 5.04pm, 'Concern for Welfare' was issued. At 5.11pm Constables Krechkin and Watson were assigned the incident.

20. A witness in the park saw RW driving his motorcycle on West Head Road and noted he was driving unusually. Ms SW, who was driving around searching and looking for RW, located him around 5.20pm. By that time, the witness' car was behind Ms SW's car, which was behind RW's motorcycle. The witness stopped his car behind Ms SW's car when he saw Ms SW had pulled over. He exited his car and approached RW, who had slowed to a stop in front of Ms SW's car, to see if

he was alright. Ms SW also tried to approach RW. Sadly, RW drove away from them both and did not engage.

Actions of NSWPF Officers

21. Constable Krechkin and Constable Watson sought additional information from the VKG after receiving the report, including whether an urgent response was required. After receiving additional information, the officers decided to upgrade the job to urgent duty and advised the VKG that they planned to respond Code Red. This was appropriate and in accordance with proper practice.

22. When they arrived at the National Park, Constable Krechkin and Constable Watson were flagged down by the assistant who was working at the Duck Holes Entry Station to the National Park. She was able to provide to the police a brief description of RW and information that he had not returned through the West Head area. The police drove into the National Park just before 5.25pm.

23. Driving along West Head Road, Constable Watson saw a male on a bike driving out of the National Park on the other side of the road who matched the description of RW. Constable Krechkin did a U-turn and activated lights and sirens and pulled in behind the car travelling behind the bike. That car gave way to the police. Constable Krechkin said that RW "didn't seem to notice us at all. He just completely ignored us I think we were following him for maybe ten or fifteen seconds. I think I was holding down the horn and changing the siren pitch to try and get his attention."

24. The bike and the car then passed the Duck Holes Entry Station and were about to head onto McCarrs Creek Road. The Assistant saw police following RW as both vehicles passed the Duck Holes Entry Station. She thought that police were travelling faster than RW and was concerned that police were travelling on the wrong side of the road. This was neither officers' recollection.

25. RW turned around and appeared to be looking at the officers. He had his indicator on. During an interview on 11 January 2021, Constable Krechnkin said that RW: "turned over his left shoulder and was waving with his left hand. I originally thought that was him indicating that he was going to pull over. So we followed him for another maybe ten or fifteen seconds". Constable Krechkin said that RW was

travelling forty or fifty kilometres an hour at this point. He said that RW was not bothered by their presence, and he realised that he was just waving to them.

26. The officers initiated a formal pursuit and activated their camera. Constable Krechkin said he decided to call a pursuit because he thought RW was ignoring the police direction to stop. He also said that by this time he had “a really bad feeling”. At this stage, RW was “swerving all over the road”. Both vehicles had turned onto McCarrs Creek Road.

27. Travelling at approximately 50km in a 60km/hour zone, the police followed RW for two or three minutes down McCarrs Creek Road into McCarrs Creek Reserve, where the police car was unable to proceed and the pursuit ended. They believed that RW was going to stop, however he manoeuvred his bike into an area where the car could not follow. Constable Krechkin got out of the car and pursued RW on foot. Constable Krechkin unsuccessfully attempted to grab RW’s motorcycle.

28. Constable Watson then saw RW continue driving across the reserve for a short distance before colliding into a tree. He described it as a deliberate act. RW landed awkwardly in the roots, and they were both worried about the position of his head and neck. Constables Krechkin and Watson dragged RW off the tree roots and into recovery position. Constable Krechkin then ran to the vehicle to collect a jumper and vest and then ran back to incident site. He provided location update to VKG. Leading Senior Constable Ben Fillingham and Constable Samuel Whittaker then arrived on the scene, followed by numerous other officers in the vicinity. A CareFlight helicopter and RW was flown to Royal North Shore, where he was admitted with major head injury involving periorbital trauma and bilateral chest trauma.

<u>Background to treatment at Royal North Shore Hospital</u>

29. He arrived at Royal North Shore Hospital and underwent emergency surgery to relieve pressure in his skull. Upon admission to hospital, RW was diagnosed with traumatic brain injury and facial and orbital fractures. He was placed in the ICU for approximately 10 days.

30. On 1 December 2020, an MRI scan of the brain demonstrated evidence of diffuse axonal injury. The external ventricular drain was removed on 4 December 2020. Following extubation in the ICU, RW was delirious, frequently agitated, and at times aggressive as is common when recovering from major brain surgery after injury. This was initially managed with a dexmedetomidine infusion in ICU before RW was put on oral medications.

31. On 8 December 2020, RW was transferred from ICU to a neurological ward after his condition had stabilized. Over the next month, RW showed some improvement in function while awaiting formal brain injury rehabilitation, at a different institution, the Royal Ryde Brain Injury Unit. He underwent CT scans on 14 and 23 December 2020, which demonstrated resolving intracranial haemorrhages. On 5 January 2021, RW was found to have a right traumatic optic neuritis. This was reviewed by the Ophthalmology team.

32. At this stage, it was anticipated that RW would require long-term rehabilitation but that his condition was no longer life-threatening. Ms SW, received a one word text on her phone at 7.14am which simply said, “Help”. At around 7.20am on 7 January 2021, RW suddenly collapsed after returning from the bathroom. He quickly lost consciousness and could not be revived despite the efforts of medical staff. An interim cause of Death Report was prepared by Dr Marna du Plessis which cited severe pulmonary embolus from DVT in both legs.

33. RW was last seen by Dr Kevin Zhou at 8.25am. Dr Zhou was the assisting doctor for Dr Nicholas Little, the neurosurgeon treating the deceased. RW’s treating nurse at the time was Brittany Howard. RW died at 8.26 am.

Analysis of Police Involvement

34. On the same day, 7 January 2021 Northwest Metropolitan Region Commander Assistant Commissioner Mark Jones declared the matter a critical incident. The critical incident should have been officially called immediately after RW had the motorcycle accident, but was not, however the first officer to arrive at the scene treated it as a critical incident. Fortunately, the failure to officially call the critical incident did not, on this occasion, affect the investigation in any negative fashion.

35. In relation to the conduct of police, Sergeant Dixon of Traffic and Highway Command commented as follows:

> The nature of this attempt to stop RW was in relation to a Concern for Welfare of his mental health after a suspected inference that he intended to end his life. (In addition to the initial CAD details, Constables Krechkin and Watson spoke to the NSWPF informant in person at the information booth on West Head Road – prior to detecting the cycle). In addition to this, Constable Krechkin stated he formed the belief that RW was 'waving goodbye' to him in the end and this further heightened the belief that self harm or suicide attempt was imminent.
>
> It is clear from the incident details and forthcoming evidence, that police were of the view that RW, due to his statements and the obvious concerns, may have to be dealt with under the provisions of s22 Mental Health Act 8/2007, which provides a power for police to apprehend or detain a person whom the police officer believes on reasonable grounds of it being probable that he (RW) would attempt to kill himself or seriously injure himself. The corresponding conduit for exercising that power is conferred in s36A *Law Enforcement (Powers and Responsibilities) Act* 103/2002 which states a police officer 'may stop a vehicle if the officer suspects on reasonable grounds that the driver or passenger is a person whom the police officer has grounds to exercise a power of arrest or detention …. under this Act or any other law.

Safe Driving Policy

36. It was clear from the evidence as it unfolded that there was compliance with the relevant parts of the Safe Driving Policy in relation to pursuits.

    1) Paragraph 7-2-1 provides that: "The decision to initiate and/or continue a pursuit requires weighing the need to immediately apprehend the offender,

against the degree of risk to the community and police as a result of the pursuit." In that regard both officers felt there was a serious risk to RW, and they were mindful that it was a very low risk to the community given it was a low-speed pursuit. They also were not undertaking a usual pursuit, where ordinarily they would be trying to apprehend someone on a criminal basis. This was a rescue mission for a psychologically unwell community member.

2) Paragraph 7-2-2 provides that prior to engaging in a pursuit, police are required to consider the potential danger to police, other road users, and the offender/s the subject of the pursuit. Several other factors are required to be taken into account, including weather and road conditions, traffic density (including vehicles and pedestrians), the time of day (including specific factors such as school zones or road works), the manner of driving and speed of the offender. The distance between the police vehicle and the offending vehicle, the driver's level of certification, and the suitability of the vehicle should also be considered. Paragraph 7-5-1 makes it clear that during a pursuit all warning devices are to be activated. Again it was clear from the evidence of both officers that they turned their minds to these matters. It was evident from the upgrading in the job that their minds were turned to the real risk RW posed to himself.

3) Paragraph 7-2-5 provides that: "During any pursuit activities all involved police must continually re-assess the pursuit within the framework set out at paragraph 7-2-2." Again I was satisfied on the evidence of the officers that safety was continually on their minds, and consistently being reassessed.

37. In his report and in oral evidence, Sergeant Dixon considered that the pursuit was appropriate in the circumstances. The weather was fine, the road surface was sealed and dry, the traffic was light, and the speed of the pursuit was very low.

38. Overall Sergeant Dixon acknowledged this was a very rare form of pursuit. It was at low speed in a situation where they were trying to ensure the safety of RW. He reviewed the conduct of the officers and provided an internal review of the pursuit and did not find any issues with the manner in which the pursuit was conducted.

39. There were some questions as to whether the use of lights and sirens could cause more of a problem in this case, however the officers described using lights and

sirens to try and get his attention. This action would also serve to warn other motorists that something unusual was happening on the roadway, and ensure others took care. It should also be noted that the officers described a calmness about RW. He was not concerned by their presence; he did not seem reactive to them at all. He initially wasn't driving in any concerning manner and maintained a relatively low speed. This was part of the factual matrix which the officers considered as they determined their course. There is no evidence to suggest that lights and sirens had any negative impact on RW. It seemed he was in a world of his own by this time.

40. The officers acted in a humane and concerned way, RW's accident clearly affected them both deeply, and the distress at not being able to prevent it was apparent. Police play many important roles in our community, and I recognize that this role was one of trying to prevent tragedy. They did all they could, they acted courageously in pushing themselves to the limits and trying to run on foot and remove RW from his bike, and had RW's interests and those of the community at the forefront of their minds at all times, but RW was unwell and determined.

The Evidence:

Appropriateness of medical care

Evidence of Dr Nicholas Little and Dr Nazih Assaad

41. Dr Little is a consultant neurosurgeon who operated on RW. He currently works as a Visiting Medical Officer (VMO) at Royal North Shore Hospital and was RW's doctor for a period of time until he then went on leave. Dr Assaad who also currently works as a consultant neurosurgeon at Macquarie University Hospital and Royal North Shore Hospital took over the oversight of care for RW.

42. Dr Little gave evidence that upon RW's admission, he authorised the insertion of external ventricular drainage (EVD). Following this procedure, Dr Little reviewed RW in ICU. At this stage, Dr Little's principal objective was to manage intracranial pressure. Dr Little then had a discussion with the neurosurgical registrar and the

ICU team regarding ongoing management of RW. Dr Little gave evidence that RW was reviewed daily by ICU staff as well as by Dr Little's neurological team at least twice a day, during the morning and afternoon ward rounds, or as otherwise required. This included a review of chemical and mechanical prophylaxis administered. Dr Little gave evidence that he also reviewed RW during his ward rounds, which usually meant 6 days each week.

43. Dr Little gave evidence that RW's EVD was removed on 2 December 2020 and RW was extubated on 3 December 2020. On 4 December 2020, venous thromboembolism chemo prophylaxis in the form of Heparin 5000 units, twice a day was commenced, and continued until the time of death. Dr Little states that he was consulted on the administration of the prophylaxis, which he considered was appropriate due to RW's multi-trauma and the risk of haemorrhage. Dr Little considered that this decision was consistent with RNSH's Departmental policy, VTE Prophylaxis Guidelines. His view is that more aggressive chemical prophylaxis in this group of patients is associated with higher rate of intracranial haemorrhage and was not clinically indicated in the circumstances.

44. On 8 December 2020, RW was discharged from ICU to the neurosurgical ward under Dr Little's care. RW had significant neurosurgical nursing needs having some behavioural symptoms, including delirium. Daily review of chemical and mechanical prophylaxis administered, which remained unchanged. Dr Little also noted that RW's confusion without motor deficit allowed for more than average physiological thrombosis prevention by muscle action. While on the ward, RW was often combative and restless without limb motor deficit. There was gradual improvement in RW's mobility and level of confusion. Dr Little reports that RW became increasingly settled and ambulant over time.

45. On 29 December 2021, Dr Little went on leave and was no longer involved with RW's care. At the time that he went on leave, Dr Little reports that RW was doing well and was ready to be transferred to rehabilitation. Dr Little handed over care to Dr Assaad. Dr Little called Dr Assaad on 28 December 2020 to discuss the handover of his patients, including RW. It was anticipated that Dr Assaad would have care of Dr Little's patients until 10 January 2021.

46. Neither doctor recalls the details of the discussion. Dr Assaad's phone records indicate that the doctors spoke for 20 minutes. Dr Little said that as RW was a recovering severe head injury waiting for rehabilitation, it is not likely that he would have suggested there was an imminent need for change in his care. He does not recall if the issue of regular medication review was discussed. If it was clinically significant, it would have been specifically discussed. Based on RW's clinical status at the time of handover, it would be unlikely that his regular medication would have been discussed at handover. Dr Little also noted that he would have been anticipated that RW would have been returned to Dr Little's care had he still been in neurosurgical ward on Dr Little's return from leave on 17 January 2021.

47. There appear to be no entries in the Royal North Shore records to show that Dr Assaad reviewed RW at any time between 29 December 2020 and 7 January 2020. According to Dr Assaad, this suggests no concerns were raised. Dr Assaad also said that concerns about patients could be brought to his attention at any time by the treating team. He has no recollection of any such concerns being brought to his attention.

48. Royal North Shore provided a statement indicating that there is no explicit policy regarding the frequency of specialist review, however, in principle weekly review is considered reasonable for stable patients not requiring active interventions. However, for patients no longer receiving acute care who do not require specialist care, this may be extended to week. Regardless of this such patients are still reviewed daily by experienced medical staff, including registrars and fellows, and there is a clear expectation that any deterioration or other concern will be escalated immediately to the attending senior medical officer.

49. Royal North Shore Hospital also states that it has an extensive, 24/7 supervision system in place for medical officers, with at least three levels of supervision in operation at all times. It also states that

> "medicines review is intrinsic to clinical review, and is not generally a separate action…While consultant staff are certainly expected to be aware of the patient's therapeutic regime, they are not necessarily involved in the day to day adjustments of that regime,

especially for a stable patient whose risk factors are well understood and whose treatment is consistent with unit policy. It is entirely appropriate for such medicines to be managed by resident medical staff.

First, medical teams are normally split into different medical, critical care and surgical specialties. The basic structure of a medical team comprises a combination of the following individuals: intern, resident, registrar, and consultant (in order of lowest to highest seniority). The consultant is in charge of the team and all patients are under the care of a designated consultant. The rest of the team supports the consultant in taking care of patients by doing most of the routine work and reporting back to the consultant.

Second, junior medical officers are trained in the safe use of medicines through formal programs, including the prevention of VTE and use of anticoagulants. Doctors including JMOs (certainly those in their second and subsequent postgraduate years) have extensive experience in the selection and use of anticoagulants. While such decisions are overseen by Senior Medical Officers, Trainees and Registrars are highly skilled in their selection and use and it would be impractical, and add no benefit, for such decisions to be routinely made at the senior level. “

Dr Kevin Zhou

50. The medical hierarchical structure provided by Royal North Shore Hospital is helpful when considering Dr Zhou’s evidence and the role in played in the care of RW.

51. A statement was provided by Dr Kevin Zhou and he gave evidence, he is currently a senior resident medical officer. At the time of RW’s admission, Dr Zhou was working as a junior medical officer at Royal North Shore undertaking a rotation through the neurosurgery ward. By the time of RW's death on 7 January 2021, Dr Zhou had been in the neurological ward for approximately 10 weeks and had one week left on his neurosurgery rotation.

52. Dr Zhou's first interaction with RW was on 9 December 2020. On this day, Dr Zhou performed a ward round with his colleagues Dr George-Thomas, Liu, Ho, Begley, Francis, and Wong. Dr Wong, also a JMO, was allocated RW's care at this time. RW was being administered 5000 units of heparin. Dr Zhou notes that he participated in ward rounds reviewing RW on 10, 11, 14, 15, 16, 17 and 18 December 2020 his colleagues.

53. RW remained under Dr Wong's care until 21 December 2020. Four days prior to this, on 17 December 2020, RW was noted to be mobilizing. In Dr Zhou's view, this further reduced RW's risk for developing DVT. On 21 December 2020, RW was assigned to Dr Zhou's care. At this time, RW was already awaiting placement at the Brain Injury Unit. This is a specialized service that provides inpatient rehabilitation for patients who have suffered a traumatic brain injury. There are limited places in that unit, which is the reason why RW was waiting for this transfer for several weeks.

54. Dr Zhou gave evidence that it was his ordinary practice to undertake a risk assessment in respect of each patient in deciding whether and how DVT prophylaxis ought to be administered. A relevant factor, according to Dr Zhou's evidence, is whether a patient has a higher risk of clotting than a risk of bleeding. Dr Zhou notes in his statements that: "Patients who are actively bleeding, such as those who have an active brain bleed, are not suited to chemical DVT prophylaxis. However, mechanical DVT prophylaxis, such as thrombo-embolus deterrent (TED) stockings, can be appropriate."

55. Medical records indicate that Dr Zhou reviewed RW on 22 December 2020; 23 December 2020; 24 December 2020; 30 December 2020; 5 January 2021; 6 January 2021.

56. In reflecting on the treatment administered for RW's prophylaxis, Dr Zhou stated as follows:

> "At the time of RW's death, I continued to consider that RW had a very low DVT risk profile, RW was being administered twice daily Heparin and he was also wearing TED stockings. In addition, he

was also fairly mobile within the ward. This further reduced his risk of DVT.

To the best of my recollection, RW did not have any bruising or bleeding on his body. Had he done so, in accordance with my usual practice, I would have reviewed his DVT prophylaxis.

Further, to the best of my recollection, RW did not complain of calf pain (which is suggestive of DVT) or shortness of breath (which suggests a clot in the lung). Had he complained of either; in accordance with my usual practice, I would have performed further investigations such as an ultrasound of his leg or a-CT of the chest.

Despite RW's occasional periods of delirium and aggression, my experience when caring for him was that he was able to tell us when he was experiencing issues with his health. For example, he alerted us to when was having changes in his vision. This is why we were able to arrange a CT of his brain on 23 December 2020.

Despite RW not having complained of pain, and notwithstanding his chemical and mechanical DVT prophylaxis, I understand the autopsy revealed that RW suffered a pulmonary thromboembolism as a result of DVT in both his legs. Based on the above and my review of the Hospital's medical records for RW· when making this statement, my recollection is that when caring for RW, there were no clinical indications that he was suffering from this condition."

57. Dr Zhou also stated as follows:

"As RW had suffered a subarachnoid haemorrhage, he was at a very high risk of further bleeding from the brain. RW was, therefore, being administered Heparin rather than Clexane (Enoxaparin). This is because while Heparin has to be administered twice per day, it has a quicker half-life than Enoxaparin. This means that had RW

> suffered a bleed to his brain, the Heparin (which is administered at approximately 0800 hours and 2000 hours every day) is metabolized faster than Enoxaparin (which is administered once every 24 hours), allowing for the performance of emergency surgery, should it be required.
>
> Save for the difference in the half-life of Heparin, I understand that it is otherwise as effective as a DVT prophylaxis as Enoxaparin.
>
> During my time on the neurosurgical ward, I had a general understanding that the Hospital's guidelines for DVT prophylaxis were outlined in the document, DVT Prophylaxis Guidelines-Surgery & Anaesthesia. I believe that RW was being administered DVT prophylaxis as per this policy."

58. Dr Zhou's evidence demonstrated a familiarity with RW and his treatment. He was careful and helpful while giving evidence. It was very clear from his account that risk of developing DVT was at the forefront of his mind at the time. He was caring in his approach to RW. Although he assessed RW's risk of developing DVT as low, I do not find that affected his conscientiousness in relation to the issue of DVT and ongoing treatment of RW. His note taking and record keeping was very thorough. It should be noted that on the evidence of the hierarchy of the medical team he was at that stage at the very lower end of the chain, and was subject to supervision and oversight by other more experienced doctors within the team. Although he could bring problems to the attention of others, the medication regime would be determined by his supervisors.

Brittany Howard

59. A statement from Brittany Howard, a nurse employed in Royal North Shore neurological ward, also states that they had considered him to be at low risk for developing DVT. She states: "this is because he was mobile and was being administered Herparin twice per day and was wearing TED stockings." She states that if RW had complained of bruising or pain in his legs, she would have escalated

the issue to a medical officer as is her usual practice. She also says that during the time she cared for RW, he made no complaints of pain or demonstrated any signs of having developed a DVT. Nurse Howard also commented that RW's ability to comply and cooperate had improved in the days just before his death.

Ms SW

60. Ms SW has also provided a statement in connection to her observations of RW during his hospital day. Her evidence was that during his first 10 days in hospital, whilst RW was in ICU, RW was restrained as he was pulling out his cords and feeding tube. He remained restrained when he was transferred to the neurological ward. This is not usual in a case where someone has suffered brain injury and is restless and confused. On 11 December 2020, RW again pulled out his feeding tube and a decision was made not to reinsert in. RW was pulling out his tube and the cords because he was agitated and confused. Ms SW recalls physiotherapists taking him on walks around this time and says that on least one occasion, RW created a commotion by entering a bathroom and refusing to come out.

61. She recollects that over a consecutive stretch of 17 days over the Christmas/New Year period, RW was seen by a physiotherapist on only 6 occasions. She does not know if RW was taken for a walk on each of these six occasions. She notes that on Christmas Day, RW was able to walk with Ms SW for a short period but then wanted to go back to bed as he was tired.

62. Ms SW also notes that RW initially had compression stockings on when he was in the shared room in the neurological ward (i.e. before 24 December 2020). However, on occasions when RW was in the shared room, she came to the hospital and saw RW had the compression stockings pulled down around his ankles. She told the attending nurse that they were too tight and enquired about the fit of the stockings. She was informed by the staff member that the stockings were the biggest size presently held by the hospital. This was of concern to her.

63. Ms SW has no recollection of RW wearing compression stockings at all. She took photos of RW on 28, 29 December and again on 5 January 2020, and RW was not wearing compression stockings in any of these photographs. She also states that

she was not made aware that RW was high risk of developing a clot in his legs. Ms SW expresses concern in her statement that the medical records state 'TEDS' were written in the medical records on the date of 5 January 2020 (which would suggest RW was wearing the stockings) yet this is the date when she took a photo of RW not wearing the stockings. She also expresses a view that at least one of the junior doctors she interacted with were reluctant to raise issues with more senior doctors.

64. Based on her contemporaneous notes, RW complained on 14 December 2020 that his eyes were hurting. On 16 December 2020, Ms SW asked if RW would be seen by an ophthalmologist. She was informed that would not occur at that time.

65. Ms SW was not able to attend the hospital from 20-23 December 2020 during to the Northern Beaches Covid lockdown. She spoke with RW during those days and he was exceptionally confused; he thought at one point that his parents and brother were alive. An additional CT scan was ordered for RW between 22 and 23 December 2020 based on this exceptional level of drowsiness and confusion. RW was moved into a single room from a shared room on 24 December 2020.

66. Ms SW gave evidence that on 22 December 2020, she asked Dr Zhou if the ophthalmologist had seen RW yet. He informed her that RW could not see him until he was more settled and less agitated. Ms SW was frustrated with the delay in having RW's eye problem investigated. She then watched him deteriorate to the point where he could not see and on 5 January 2020, he was taken to see an ophthalmologist and treated.

67. The evidence noted by Dr Zhou was that RW was in such an agitated state that he could not be taken for review prior to that time.

68. Dr Philip Hoyle represented RNSH, and conceded that some things could have been done better. He agreed that better communication with Ms SW about the high-risk status for DVT related complications was necessary and should have occurred, and that provision of correct TED stockings was something that should have been resolved. These things would not have changed the outcome, but communication with family is a matter RNSH took seriously as evidenced by Dr Hoyle.

69. He was troubled by the delay in the treatment of RW's eyes, he would not usually expect that sort of time delay. It was later in evidence drawn to his attention that there may have been behavioural risk factors behind the reason to delay the consult, and he agreed then that this was an important factor for the treating doctors to consider. Dr Hoyle presented a very human face for the hospital, he took opportunities to address Ms SW directly, considered and addressed her concerns and indicated that he would do what he could to improve on the issues raised.

Preventative treatment of DVT

70. A significant issue in the inquest was whether the decision to use unfractionated heparin should have been revised at any time after RW was transferred to the neurology ward. The existing guidelines at the time provided that an assessment of prophylaxis should be undertaken every 7 days. The new guidelines now in place suggest consideration should be given to "Consider replacing with Enoxaparin after 3 days or as soon as bleeding risk decreases further." The evidence in these proceedings was the neurosurgery team prefers the use of unfractionated heparin. Unfractionated heparin is a reversable drug, in the case of bleeding its effects can be countered. The competing view is that the preferred drug of use after 3 days following surgery is Enoxaparin (also known as cloxane). There was a disparity in the evidence as to whether Enoxaparin is a superior drug in the prevention of DVT.

71. Dr Flecknoe-Brown, consultant physician and clinical pathologist, provided a helpful explanation RW's condition. He said that with this outcome usually a deep vein thrombosis is the initiating problem. He explained that we need to be capable of forming clots to seal off injured blood vessels but if the clotting process becomes imbalanced due to a number of factors, that clot propagates into the inside of the vein and can become a thrombosis. Typically, these thrombosis are in the lower limbs, but occasionally in the pelvis. A deep vein thrombosis is an extension of a normal clot into the centre of the vein, and this is when it causes problems.

72. A pulmonary embolism, he explained, refers to the lungs. This occurs when the propagating tip of the thrombosis that has occurred either in the lower limbs or the

pelvis, breaks off from the main body of the thrombosis, and is drawn up in the venous system, up to the right side of the heart, travels through the right side of the heart and into the pulmonary arterial supply. The artery is the vessel coming from the heart. In this case it is unoxygenated blood, but it is still an arterial process, and the embolic thrombus lodges in the pulmonary arterial circulation where it causes problems with oxygen transport, or in the case of a very big one, can actually interfere with circulation completely.

73. Dr Brighton, consultant haematologist, explained the risk factors vein thrombosis as follows: He explained there are several broad groups of risk factors. The first relates to some sort of injury to the venous system. He explained that with surgery or with trauma there's direct injury to the vein circulation or to the vascular system, and that can promote as part of the injury the development of a thrombus inside the veins.

74. A second important risk factor is "Venous stasis". He again described that normally when we are walking and ambulant the blood in our venous circulation is continually moving. In circumstances of illness or injury or surgery or trauma, often patients are left completely immobile. The patient is not walking, and is not ambulant which causes venous stasis and promotes the formation of a thrombus in the calf veins particularly, which can grow to cause pulmonary embolism.

75. Thirdly he indicated that there are a number of things that can happen to the blood system which can promote the formation of thrombus in the venous system relating to the thickness of the blood. A number of complications that occur with illness and injury, trauma or operations that makes the blood more likely to form blood clots resulting in hypercoagulability.

76. Finally, there are personal factors that also can add to risk such as a history of thrombosis in the family, a prior history of developing thrombosis, obesity, or particular medications or particular other illnesses. These personal factors can increase the risk. Individual patients bring their own risk profile.

77. The experts agreed that RW was amongst one of the highest risk groups in terms of inpatients to develop vein thrombosis.

78. The opinion of Dr Flecknoe-Brown was that the decision to use unfractionated heparin ought to have been revisited once RW had been transferred to the neurology ward. He considers that this view is supported in the new NSLHD Guidelines, table 7.4.10 (All surgical major trauma patients), where it states "Consider replacing with Enoxaparin after 3 days or as soon as bleeding risk decreases further".

79. He also raised the dose of unfractionated heparin that was administered, and he opined that rather than 5,000 units that were prescribed he would prefer a dose of 3,000 -5,000 units three times per day. He also opined that there are no studies to show that unfractionated heparin is better than Clexane. In his view there are studies to support the better outcome being with a move to enoxaparin. In his view once RW was neuro surgically stable he should have been transferred to enoxaparin. He did concede that the evidence is lacking, particularly in relation to this specific subset of trauma.

80. Dr Tim Brighton emphasized that even though RW was at high risk of vein thrombosis he also was, for the early part of his admission, at high risk of bleeding potentially aggravated by anticoagulant medications. He suggests that recommendations (e.g. RNSH guidelines) are guidance for clinicians in the prevention of vein thrombosis and are not prescriptive, and that clinicians are required to make judgement decisions based on their experience and their assessment of the balance of risks of bleeding and risks of thrombosis when prescribing anticoagulant medications.

81. Dr Brighton is further of the view that the literature does not support the existence an efficacy and/or safety advantage of Enoxaparin compared with heparin in patients with traumatic brain injury and intracranial haemorrhage. He explained that in his view there wasn't sufficient literature to support the efficacy of these prophylactic regimes, nor the safety advantage which would discriminate the choice of one. He indicated in his report and evidence that studies are rated in terms of their adequacy, with level A or 1 being the highest level, where patient groups are allocated a treatment purely by chance, randomising the study.

82. In the case of patients with significant traumatic brain injuries with intracranial bleeding together with other injuries he says there is only one randomised study published, a small study of 62 patients, and he says the focus was looking only at the early introduction of anticoagulation and therefore from that it is impossible to draw conclusion around efficacy and safety. He said there are other prospective studies, (level two or three type studies) where a question has been developed to be answered. He said that there are two small prospective studies, and suggested caution about applying the outcomes to patients with traumatic brain injuries and intracranial bleeding.

83. Further he confirmed that unfractionated heparin is reversible compared to clexane. He said that guidelines published by the Brain Trauma Foundation and various American Societies indicate that prophylaxis may also lead to increased risks of extension of bleeding. He said that neurosurgeons are sensitive to this issue because intracranial bleeding often requires more surgery to decompress the brain and can have a bad outcome. He considered that in his observation neurosurgeons generally prefer to use unfractionated heparin for prophylaxis.

84. In relation to dosage he indicated that he could not find any evidence in the literature to agree to the proposition that the dosage should have been increased to the level suggested by Dr Flecknoe-Brown. He says the clinicians have to use their best judgement based on what they consider the risks of thrombosis are, and in particular in this case, the risks of bleeding.

85. The two neurosurgeons Dr Little and Dr Assad were strongly of the view that they would not use Enoxaparin. They cannot reverse the effects of it, therefore if there is a fall causing a bleed they cannot assist their patients unlike with heparin. The nature of the operation resulting in high risk of falls given the brain trauma, and high risk of bleeding lead both to the view that neither would consider moving to Enoxaparin unless there was good reason to do so. Neurosurgery distinguishes itself from other types of surgery on this basis. RW was at high risk of fall.

86. Dr Assad said that in his view and the view taken internationally is to take caution around prescribing neurosurgical patients clexane, and that there would have be a particularly good reason to do so. He said in his view there is no distinct advantage

demonstrated in the literature in using celaxane over heparin and even if there was it would have to be quite a distinct advantage for him to want to use an agent that is difficult to reverse in the context of haemorrhage.

87. Dr Little was of the same view. He gave evidence that constantly there is a balancing act between management of thrombosis risk and the possibility of haemorrhage. He said in his experience the consequences of haemorrhage in the brain when faced with a situation of an anticoagulant that is not fully reversible can be significant.

88. Dr Brighton agrees with the approach of the two neurosurgeons, in that he does not see the necessity to change to enoxaparin. His evidence was there is insufficient high-quality research to demonstrate any real advantage in the use of enoxaparin from an efficacy or safety point of view.

89. Dr Flecknoe-Brown had a different view. His view is supported by the evidence within the studies referred to and by the fact that the guideline has changed to support consideration of enoxaparin at day three. Both experts provided a solid basis for their view. Both were impressive and very helpful to the inquest, and gave a critical, useful and analytical deconstruction of the issue.

90. There is clearly a well-reasoned and considered difference of opinion. In relation to RW, the neurosurgeons who were responsible for his care were of the view that he was on the correct medical regime. They both reasoned that in their field, in their opinion survival and better outcome was best supported by the reversable drug heparin.

91. I should comment here that each of these four doctors were engaged with the literature, although each had a current view it was clear that they remain guided by research and guidelines. Each formed their views on current literature, and each were willing to be persuaded by new research outcomes.

92. Royal North Shore Hospital did not complete a review of the prophalaxis strictly in line with the existing 7 day policy. But the evidence disclosed that they reviewed this issue every day. Dr Zhao was of the view that it was in the forefront of the minds of the neurosurgical team. The thought of losing a patient to DVT after the

painstaking effort of saving a patient through delicate surgery was unthinkable. That was very clear in the evidence. Dr Hoyle also independently raised this as a constant concern at Royal North Shore Hospital.

93. There are two positions, and two arguments. On the evidence it was clear that RW's treating doctors did consider what in their view was proper treatment for prevention of DVT. The evidence was that they addressed it in the manner they thought appropriate to RW's individual risk factors. I accept that as a part of regular practice the issue was being factored into every assessment undertaken. I accept that he was treated in accordance with proper and accepted practice in relation to management of DVT.

94. I accepted the evidence that performing scans and tests to look for and consider DVT in every high-risk patient is not a medical practice that is undertaken or advised. Dr Flecknoe-Brown provided helpful evidence on this issue. The evidence was that clots will form in many people, identifying such clots will not work towards avoiding DVT because in most cases clots will not result in that outcome. That practice could in fact promote over treating an otherwise healthy patient.

95. In relation to the absence of wearing the TEDS although this is proper practice there is no evidence in this matter to support a finding that the proper wearing of TEDS would eliminate the risk of RW developing DVT. In any event, the hospital has indicated a willingness to look further into matters raised by Ms SW.

96. In relation to the medical evidence, the overall evidence from Royal North Shore Hospital was of a caring and committed group of doctors, nurses and hospital staff. Communication with Ms SW could have been improved, and that was recognized through the Inquest. Ms SW contributed throughout the Inquest, which prompted Dr Hoyle to take on board her concerns, and he made a commitment to further improve the problems she highlighted. As a result it is not necessary to make any recommendations in this matter. I accept that RW was treated in accordance with accepted medical practice for the management and prevention of DVT.

Intentionally self-inflicted and/or precipitated by a mental health episode

97. Ms SW knew the event on 28 November 2020 was different from others, she was so concerned about his behaviour that she went driving to find him. She did in fact find him and he continued on his path, and considering his great commitment and care for her, he clearly was not able to think properly given his mental state. RW made remarks to a staff member in the park and to a friend consistent with his intention, and he had a very significant history of depression and suicidal thoughts. The officer watched and considered that RW drove with purpose into the tree. The motor cycle itself had no mechanical faults and RW was under the influence of alcohol at the time of the collision (0.092g/100mL) which would have affected his capacity for clear thought and judgement. On the basis of the evidence, I find on balance that RW intended to drive the motorcycle into the tree to harm himself.

Autopsy Report

98. Dr Marna du Plessis found that the post-mortem findings supported the cause of death as pulmonary embolus due to bilateral deep vein thrombosis (DVT). The underlying motorcycle collision and surgery contributed to these conditions. His chronic ischaemic heart disease was a significant condition contributing to his death.

Acknowledgments

99. To the Officer in charge Detective Chief Inspector Scott McAlpine, thank you for the careful and detailed work put into generating the significant brief. Thank you to Officers Krechkin and Watson who undertook a rescue mission and attempted to act in the best interests of RW. All contributed helpfully to the Inquest to enable a better understanding of the events leading to RW's death.

100. To the cooperation of all legal representatives that represented the parties in the proceedings in ensuring the inquest was a useful and productive analysis of the loss of RW.

101. Importantly to Ms SW, who provided, with such grace and dignity, valuable insight into the life of RW. She gave evidence as to the events leading up to the

accident, and her role in keeping a careful watch of him while he resided at Royal North Shore Hospital resulted in essential evidence in the proceedings. This material was invaluable in the inquest, and her participation in the proceedings has already had a reaction from the Hospital and will promote change.

102. Finally to the team assisting the Coroner. The level of preparation and commitment to ensuring the best possible review of matters relating to RW was commendable. The analysis of the factual background material was of great benefit to me in these findings.

Findings required by s81(1)

As a result of considering all of the documentary evidence and the oral evidence heard at the inquest, I am able to confirm that the death occurred and make the following findings in relation to it.

The identity of the deceased

The deceased person was RW

Date of death

7 January 2021

Place of death

Royal North Shore Hospital, St Leonards New South Wales

Cause of death

The death was caused by pulmonary thromboembolus as a result of bilateral deep vein thrombosis which developed after treatment for a self-inflicted intentional motorcycle collision, on the background of chronic ischaemic heart disease.

Manner of death

Complications following medical procedures following an intentionally self-inflicted motorcycle accident causing injury.

I again extend my most sincere condolences to Ms SW for the loss of such a significant person from her life.

I close this inquest.

Magistrate E Kennedy
Deputy State Coroner
1 December 2022