STATE CORONER'S COURT
OF NEW SOUTH WALES

Inquest:	Inquest into the death of Michael Nelson
Hearing date:	26 October 2015
Date of findings:	28 October 2015
Place of findings:	State Coroner's Court, Glebe.
Findings of:	Magistrate Sharon Freund, Deputy State Coroner
File numbers:	2014/134742
Representation:	Dr P Dwyer instructed by Ms J De Castro Lopo as Counsel Assisting the Coroner; Ms L Boyd instructed by Crown solicitors office for Western Sydney Local Health District; Ms K Doust instructed by the NSW Nurses and Midwives Association for RN Copeland;
Findings:	I find that Michael Nelson died on 3 May 2014 at Westmead Hospital as a result of multiple co-morbidities including dementia, parkinson's disease, undernourishment and respiratory compromise caused by neck dystonia and possible intravenous midazolam.

REASONS FOR DECISION

INTRODUCTION

1. Michael Nelson was only 62 years old when he passed away at Westmead Hospital on 3 May 2014. At the time of his death, he had been suffering from the effects of early on-set dementia and Parkinsons disease for some years. He is survived by his wife Susan, and children Katie, Russel and Sophie.
2. Mr Nelson was admitted to Westmead Hospital emergency department at about 9 am on 2 May 2014, as he was unable to eat or lift his head.
3. Just after midnight on 3 May 2014, Mr Nelson died. That was four hours after he was mistakenly given 2.5mg of Midazolam by way of Intra Venous as opposed to intramuscular injection, and although the total dosage was within the recommended limit, there was a question as to whether or not the mode of administration had contributed to his death.
4. The error was picked up in quickly and his death was reported to the coroner.

THE FUNCTION OF THE CORONER AND THE PURPOSE OF THIS INQUEST

5. The role of a Coroner as set out in s. 81 of the Coroners Act 2009 ("**the Act**") is to make findings as to:
   a) the identity of the deceased;
   b) the date and place of a person's death;
   c) the physical or medical cause of death; and
   d) the manner of death, in other words, the circumstances surrounding the death.
6. A coroner, pursuant to s.82 of the Act, also has the power to make recommendations, concerning any public health or safety issues arising out of the death in question.
7. The issues considered by this inquest were set out by Dr Dwyer, counsel assisting during the course of her opening namely:
   a. Did Mr Nelson's high INR level's contribute or cause his death?

b. How did Mr Nelson come to be given IV Midazolam instead of Intramuscular ("IM") Midazolam?
c. Was the administration of IV Midazolam a causal factor in Mr Nelson's death?
d. Was the administration of IV Midazolam related to any systems failure at Westmead Hospital? And
e. Are there any recommendations that should be made related to Mr Nelson's death?

I will deal with each of these issues in turn.

BACKGROUND FACTS

8. Mr Nelson, was a qualified accountant. He worked for the tax office for 20 years before starting his own accounting business. He ran that for the next 20 years and was clearly a clever and successful professional.
9. His health problems commenced in 2007 when he was first diagnosed with deep vein thrombosis after a long flight. He was treated with Warfarin for 6 months[1] to clear the clots.
10. In 2008, while still working full time, Mr Nelson began suffering from lapses of orientation and memory and was diagnosed by a neurologist as having a mild form of epilepsy[2] . He was prescribed Dilantin, an anti-seizure medication. While on that drug, he began to exhibit behavior that was very out of character, including aggression and lapses in concentration. Although, these behaviours were initially dismissed as a side effect of the medication, he continued to deteriorate, and by 2011, Mr Nelson had been diagnosed with fronto-temporal dementia, a rare disorder related to Alzheimer's disease that is responsible for a significant percentage of young onset dementia cases. It is characterised by pronounced changes in affect and personal and social conduct[3].
11. As a result of the diagnosis, Mr Nelson attended the neuroscience research unit at Prince of Wales Hospital for treatment, which included, extensive testing and scans that led to a diagnosis of "progressive non fluent aphasia", meaning that his speech was being affected by muscles in his throat that were no longer

[1] Exhibit 1, Tab 3, paragraph 4;
[2] Exhibit 1, Tab 5, Statement of Susan Nelson, paragraph 6;
[3] (Snowden JS1, Neary D, Mann DM, Frontotemporal dementia, Br J Psychiatry. 2002 Feb;180:140-3)

working as intended. As a result, his business was wound up with the assistance of his wife Susan.

12. By the end of 2013, Mr Nelson's communication was severely limited and he was not able to follow what was going on around him. Since he was sitting for long periods of time, he developed DVT again, this time in his right leg, and he was placed back on warfarin. He was required to have regular tests every few weeks to check the warfarin levels.

13. Until March 2014, Mr Nelson was looked after by his wife, with the assistance of a carer visiting the home. However, in 2014, his condition had resulted in him having considerable difficulty eating and swallowing and he was losing weight rapidly. He had lost 23 kg since in about 3 years. Accordingly in February 2014, Mr Nelson was admitted to Westmead Hospital to have 10 teeth removed. He absconded during that admission, but was located again and discharged home.

14. In March 2014, Mr Nelson was assessed by the Aged Care Assessment Team ("**ACAT**") and was then admitted to Waldock Nursing home in Carlingford. He continued to deteriorate, and remained on Warfarin because the blood clots had returned.

15. In late April, during a visit, Mrs Nelson noticed that Mr Nelson was leaning forward and seemed to be more rigid in his body. By 26 April 2014, Mr Nelson had developed a neck dystonia, a disorder that causes involuntary muscle contractions that cause the neck to turn or pull involuntarily. His chin was touching on to his chest in a way that made it impossible for him to eat or drink easily.

16. At 7.40am on 2 May 2014, staff at the nursing home contacted emergency services requesting urgent assistance for Mr Nelson because he was not eating and was unable to lift his head. He was picked up at around 8.30am and taken to Westmead Hospital by ambulance. Mr Nelson was admitted to the Emergency Department at 9.01am. He remained there for over 8 hours, waiting for admission to the Neurology Ward. He was diagnosed as having torticollis, a twisting of the muscles of the neck.

17. Mrs Nelson was advised by the Nursing home of her husband's admission to Westmead Hospital[4].

[4] Exhibit 1, Tab 5 at paragraph 24;

18. At 10.40am, Mr Nelson was seen by Dr Sivitha Raju, the day shift Emergency registrar.

19. At 11am, Mr Nelson was reviewed by the Neurology advanced trainee, Dr Susan Walker[5]. Her evidence was that to assist her with her diagnosis, she phoned Waldock Nursing home and also Mr Nelson's wife Susan, to obtain background information. It is in this call that Mrs Nelson reiterated that if anything adverse occurred, Mr Nelson was not to be resuscitated.

20. Dr Walker then discussed the Management Plan with Dr Samuel Kim Neurology staff specialist. That treatment plan included:

    - consideration of Botox
    - administer Vitamin K to reduce INR levels
    - transfer to the neurology ward, under the care of Dr Samuel Kim Neurology staff specialist

21. Around 1.30pm, Dr Raju handed over the care of Mr Nelson to Dr Laura Brown, the night shift Emergency registrar[6]. She was advised by Dr Raju that Mr Nelson had dementia and had presented to hospital with dystonia of the neck. He was waiting for a bed to become available so that he could be transferred to the neurology ward, under the care of Dr Kim. Dr Brown was advised that since the warfarin levels were high, Vitamin K had been administered, but she noted that there were no signs of any active bleeding.

22. Sadly, as a result of his condition, Mr Nelson became increasingly agitated in the evening.

23. The evidence indicates that around 7pm, he wandered outside the hospital, and was bought back by nursing staff[7].

24. At around 7.45pm, the Emergency Department staff specialist on duty, Dr Andrew Coggins, was advised by the nurses that Mr Nelson was becoming increasingly agitated, refusing to get into bed and was hitting and spitting at staff[8]. Dr Coggins initially instructed nurses to give Mr Nelson 5 mg of Olanzapine orally, which was then the first line for control of anxiolysis (anxiety) in an elderly patient. Olazapine is dissolved under the tongue. However despite

[5] Exhibit 1, Tab 10;
[6] Exhibit 1, Tab 8;
[7] Exhibit 1 Tab 6 at paragraph 8;
[8] Exhibit 1, Tab 16 at paragraph 12 and oral evidence on 26 October 2015;

5 nurses trying to hold down Mr Nelson so he could be given the Olazapine he continued to spit it out[9].

25. It was the evidence of Dr Coggins that he was advised by Nurse Copeland of the difficulty that nurses were having in administering the Olzapine to Mr Nelson. Accordingly, he directed Registered Nurse Louise Copeland to give Mr Nelson 2.5 mg of Midazolam by intramuscular injection. Nurse Copeland had approached Dr Coggins carrying the relevant Medication Chart and in accordance with procedure, he wrote the prescription up in the chart as "2.5mg Midazolam IM Stat". He also asked for Mr Nelson to be specialized with a 1:1 nurse, although that was not available at the time he saw Mr Nelson.

26. Dr Coggins went back to the nursing station approximately 10 meters from Mr Nelson's bedside, and he remained there until he heard an emergency buzzer and was summonsed to attend on Mr Nelson, where he saw a nurse administering CPR. He attended quickly and instructed the nursing staff to halt the CPR as he understood Mr Nelson was "Not for Resusicitaion". He could also see that Mr Nelson had resumed breathing.

27. It was later discovered that RN Copeland had in fact administered the Midazolam by intra venous, not intramuscular injection. Dr Coggins was able to deduce that this is what had happened by the way Mr Nelson had reacted to the drug. RN Copeland confirmed to him that she given the drug intravenously and when Dr Coggins asked why she had done that, she and other nursing staff said that they thought Dr Coggins had told them it was okay to give the drug intravenously.

28. Mr Nelson commenced breathing again after his initial respiratory arrest, but he passed away approximately four hours later.

DID MR NELSON'S HIGH INR LEVEL'S CONTRIBUTE OR CAUSE HIS DEATH?

29. Mr Nelson was found to have high INR levels on his admission to Westmead hospital.

30. INR is a blood test that measures how long it takes for blood to clot and it is an essential component in the management of patients, like Mr Nelson who receive Warfarin. The higher the INR, the longer it will take for the blood to clot, and

[9] Oral evidence of RN Copeland – 26 October 2015;

treating doctors have to be aware of the risk of bleeding. The lower the INR, the more likely a person is to develop a clot, and doctors similarly have to be alert to that risk.

31. In this case, Westmead did not administer the Warfarin, but they knew that Mr Nelson was on the drug and they monitored it accordingly. Since the INR levels were high, Vitamin K was ordered and administered to reverse the effects of the Warfarin.

32. Dr Brown, the night registrar, noted no signs of active bleeding when she treated Mr Nelson. Moreover, the Post Mortem Report dated 9 January 2015[10] found there was no sign of a hemorrhage that might be associated with increased INR.

33. Accordingly, I am satisfied on balance that the high INR level was not a contributing factor related to Mr Nelson's death.

How did Mr Nelson come to be given IV Midazolam instead of Intramuscular ("IM") Midazolam?

34. It is clear that Dr Coggins directed and charted that Mr Nelson be given 2.5mg of Midazolam administered intramuscularly[11].

35. The oral evidence of RN Copeland can be summarised as follows:

    a. It was a chaotic evening in the emergency department on 2 May 2014;

    b. At the time Dr Coggins charted the Midzaolam he had asked her "*has he removed his canula?*"

    c. She thought that Mr Nelson had pulled out his Canula;

    d. Dr Coggins then instructed her to give him 2.5 mg of Midazolam IM;

    e. When she went to get the Midazolam out of the medicine cupboard she noticed that Mr Nelson still had his canula and she asked Dr Coggins: "*do you mind if I give it to him IV as he still has his Cannula?*"

    f. In response to her question about IV administration, she thought Dr Coggins had said: "*yes*";

    g. She then proceeded to give Mr Nelson the Midazolam via IV;

36. Dr Coggins has no recollection of any conversation in which he agreed to Mr Nelson being given Midazolam IV. He conceded however that around that time

[10] Exhibit 1, Tab 2;
[11] Exhibit 1, Tab 18 at page 207;

he was writing up another patient's notes and Nurse Copeland may have said something to him, and he may have replied in the affirmative, but not understood what he had consented to.

37. It was the evidence of Dr Coggins that he never intended Mr Nelson to be given the Midazolam via IV. In his experience, he has found the drug even in very low doses has caused respiratory distress in two elderly patients, so that if that was the ordered method of administration he would have been bedside for its administration.

38. Dr Coggins conceded that in the case of Mr Nelson this was an unfortunate communication error between himself and RN Copeland. Nurse Copeland also took some responsibility for the breakdown in communication.

WAS THE ADMINISTRATION OF IV MIDAZOLAM A CAUSAL FACTOR IN MR NELSON'S DEATH?

39. It is clear that the total amount of Midazolam given to Mr Nelson by IV administration was well within the clinically appropriate limit, whichis determined as being between 2.5mg to 5mg IV, repeated every 3-4 minutes, titrated to clinical response, up to a maximum dose of 30mg[12].

40. I note however the oral evidence of Dr Coggins that he himself has witnessed two elderly patients prior to Mr Nelson go into respiratory depression after having low doses of Midazolam administered by IV. It seems that Mr Nelson has had a similar reaction. That sounds a note of caution about the use of this medication by intra venous injection, for elderly and frail patients.

41. It was also the evidence of Dr Coggins that he considered it was possible that as result of receiving the Midazolam, together with his Neck dystonia, Mr Nelson became hypoxic because of the ongoing respiratory depression caused by both the drug and the mechanics of his condition.

42. It is of relevance that once CPR was ceased Mr Nelson resumed breathing. He died approximiately 4 hours later. Accordingly, although the Midazolam may have contributed to his death, it was not the direct cause of his death.

43. Accordingly I am satisfied that the reaction Mr Nelson had to the Midazolam administered via IV was very unusual, and unpredictable and was not the direct cause of Mr Nelson's death.

[12] Exhibit 1, Tab 21 – eTherapeutic guidelines "Behavioural emergencies: acute medical settings";

WAS THE ADMINISTRATION OF IV MIDAZOLAM RELATED TO ANY SYSTEMS FAILURE AT WESTMEAD HOSPITAL?

44. After hearing and considering all the evidence in relation to the death of Mr Nelson I am satisfied that what occurred on 3 May 2014, was not as a result of any systems failure at Westmead Hospital.
45. Dr Coggins is clearly an experienced staff specialist in Emergency Medicine. He is a competent and caring practitioner well versed in the "communication loop" and is tasked with running education seminars in communication and handovers.
46. Similarly, RN Copeland is a highly experienced practitioner, with over ten years experience in emergency medicine.
47. The miscommunication that occurred on 4 May 2014, was unfortunate. It was picked up very early and conceded by all involved.
48. Since I did not identify any systems failure at Westmead Hospital, and I am satisfied that this was an isolated incident involving two practitioners who are skilled and diligent, I am of the view that no recommendations are warranted in the circumstances.

Findings

Accordingly, I now turn to the findings I am required to make pursuant to section 81 of the *Coroners Act 2009*.

I find that Michael Nelson died on 3 May 2014 at Westmead Hospital as a result of multiple co-morbidities including dementia, parkinson's disease, undernourishment and respiratory compromise caused by neck dystonia and possible intravenous midazolam.

Recommendations

I note that I have been provided with a very helpful letter written by Joanne Edwards, Director of Nursing & Midwifery, Westmead Hospital, which highlights relevant policies

and procedures that were applicable to the Hospital at the time of Nr Nelson's death, and are still in operation. These include:

- *Medication Administration Compliance Procedure for Nurses and Midwives within WSLHD Acute Health Care Facilities* (June 2013), which outlines the practice and procedure necessary to ensure that medications are administered safely within the clinical environment using the "5 rights" principles (Right patient, Right Drug, Right Dose, Right Time, Right Frequency and Right Route), and
- E therapeutic Guideline, "Behavioral emergencies: acute medical settings"

The letter also details some important newer policies, procedures and training options, including:

- *Management of Patients with Acute Severe Behavioural Disturbance in Emergency Departments*, GL2015_007 (a Ministry of Health Guideline which will be supplemented by a local protocol), and
- An 'in service' training package entitled "S4/S8 Medication Administration Policy Compliance Action Plan".

For the reasons set out in these findings, and given the evidence of a pro active approach taken by the hospital to avoid medication errors, I decline to make any recommendations pursuant to section 82 of the *Coroners Act 2009.*

28 October 2015

Magistrate Sharon Freund
Deputy State Coroner