CORONERS COURT OF QUEENSLAND

FINDINGS OF INQUEST

CITATION:	**Inquest into the death of Maxwell Murphy**
TITLE OF COURT:	Coroners Court
JURISDICTION:	SOUTHPORT
FILE NO(s):	2014/4341
DELIVERED ON:	18 December 2020
DELIVERED AT:	Southport
HEARING DATE(s):	3 September 2018, 3-5 December 2018 & 7 November 2019
FINDINGS OF:	James McDougall, Coroner
CATCHWORDS:	CORONERS: Inquest, ingestion of Bacban, poison, nursing home, staff responses, hospital responses, standard of care.

REPRESENTATION:

Counsel Assisting:	Ms Joanna Cull & Ms Alana Martens
Mr Murphy's NOK:	Mr John Farren (instructed by Caxton Legal Centre)
Lions Haven:	Mr Michael Purcell (Potts Lawyers)
Dominant Australia Pty Ltd:	Mr Matthew Hickey (instructed by Cowell Clarke Commercial Lawyers)

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Introduction

1. Mr Maxwell Murphy was 89 years old at the time of his death.

2. He had been a resident of Lions Haven for the Aged (Lions Haven) for five years prior to his death.

3. On 21 November 2014, Mr Murphy ingested a substance.

4. Mr Murphy was discovered by a personal carer at around 1430 coughing and leaning over the sink in his bathroom. An open bottle of Bacban was located in his bathroom. He complained of a burning sensation. As a consequence, the Poisons Information Line (PIC) was contacted and Mr Murphy was monitored.

5. Throughout the afternoon, Mr Murphy continued to cough, salivated excessively and complained of burning. He also complained of an inability to swallow. Later he was observed to be coughing up blood.

6. Mr Murphy was subsequently observed to have difficulties breathing. He was given oxygen and the Queensland Ambulance Service (QAS) was contacted at 1700.

7. QAS officers arrived at 1715 and transported Mr Murphy to the Gold Coast University Hospital (GCUH).

8. Mr Murphy was intubated and ventilated in the Emergency Department (ED) to maintain his airway. CT scan post intubation showed no evidence of perforation but there was oedema of the oropharynx and tissues around the endotracheal tube.

9. Mr Murphy was admitted to the Intensive Care Unit (ICU) where he underwent an endoscopy and was diagnosed with corrosive esophagitis.

10. Mr Murphy subsequently developed ventricular tachycardia followed by cardiac asystole. He died at 0420 on 24 November 2014.

The Inquest

Background

11. Mr Murphy’s next of kin raised concerns regarding the circumstances in which the bottle of Bacban was left in Mr Murphy’s room. Additionally, there was uncertainty regarding the substance and volume consumed by Mr Murphy, the advice provided by the PIC and whether medical treatment should have been sought for Mr Murphy at an earlier time.

12. As there was uncertainty concerning the circumstances leading up to Mr Murphy’s death, in accordance with section 28 of the *Coroners Act 2003* (‘the Act’), I directed that an inquest be held into Mr Murphy’s death.

13. On 2 September 2018, a pre-inquest conference was held.

14. The issues identified at the pre-inquest conference to be explored at the inquest were:

    a. The findings required by section 45(2) of the Act, namely the identity of the deceased, how he died, when he died, where he died and what caused his death.
    b. With respect to section 45(2)(b) and 45(2)(e):
        i. The substance and quantity of substance that Mr Murphy most likely ingested on 21 November 2014;
        ii. How the bottle of Bacban found in Mr Murphy's bathroom came to be there and who left it there;
        iii. The accuracy and adequacy of the information given to the Poisons Information Line NSW by Pamela Fox as to the substance and quantity of that substance ingested by Mr Murphy;
        iv. The adequacy of the response of staff from Lions Haven to Mr Murphy's medical situation on 21 November 2014;
        v. Whether the changes made to policies and procedures and training by Lions Haven following the incident involving Mr Murphy are adequate;
        vi. The adequacy and accuracy of the Dominant Pty Ltd Material Data Safety Sheets for Bacban and whether any changes to these data sheets are required;
        vii. The adequacy and accuracy of the information regarding the impacts of Bacban (at its various concentrates) held by the Queensland and NSW Poisons Information Centre (PIC);
        viii. The adequacy of information given to Lions Haven by NSW PIC;
        ix. The adequacy of the information given to GCUH by Queensland PIC; and
        x. Whether any changes to the information held and advice provided by Queensland and NSW PIC are required.
    c. Whether there are any comments or recommendations that ought to be made pursuant to section 46 of the Act.

15. Leave was granted to the legal representatives for Mr Murphy's next of kin, Lions Haven and Dominant Australia Pty Ltd to appear at the inquest.

16. Prior to the inquest commencing, a brief of evidence (BOE) was prepared and distributed. The BOE contained:
    - Reports from the Queensland Police Service (QPS);
    - Autopsy report;
    - Mr Murphy's records from Lions Haven, QAS and GCUH;
    - Statements from Lions Haven Staff and QAS paramedics;
    - Memorandums, incident report and staff training information from Lions Haven;
    - Information provided by Mr Murphy's family members;
    - Information provided by Dominant Australia Pty Ltd (Dominant);

- Information provided by Queensland and NSW PICs;
- Statement from a senior chemist; and
- Expert reports from a toxicologist and emergency physician.

17. The inquest was held on 3 – 5 December 2018 and 7 November 2019.

18. The inquest heard oral evidence from:
    - Glenn Connell;
    - Andrew Dawson;
    - Colleen Dicks;
    - Pamela Fox;
    - Hanson Le;
    - Janet Mason;
    - Catherine Newman;
    - Tony Peter;
    - Janelle Preston;
    - Damian Rankin;
    - Michael Robertson;
    - Michelle Todd;
    - Yvonne Waddington;
    - Karin Wilde; and
    - Carol Wiley.

19. RN Marindire was unable to be located and served with a notice to appear so he was not able to be examined or cross-examined regarding the statement he provided to the QPS. QPS investigations indicate RN Marindire no longer resides or works in Australia.

Maxwell Murphy

20. Mr Murphy was born on 20 October 1925 to an unmarried 19 year old Roman Catholic girl and placed in a children's home after his birth. He was adopted when he was 15 months old.

21. At 15 years and 8 months old, Mr Murphy changed his surname to Murphy and lied about his age to enlist in the Army. He fought for Australia in World War II in Darwin as one of the original Darwin Defenders.

22. Mr Murphy met his wife and they married despite her family's disapproval of Mr Murphy. Their union, which lasted 67 years until Mrs Murphy's death, produced two children, five grandchildren, 13 great grandchildren and 14 great great grandchildren.

23. After the war, Mr Murphy worked in the building industry and as a security guard.

24. Mr Murphy was an active participant in his local Returned and Services League (RSL) and held positions of President and Vice-President in a number of chapters. Mr Murphy would also attend Darwin in February every year to commemorate the bombing of Darwin.

25. Mr Murphy loved sports and having a beer with his mates. He was an active member in the community volunteering his time in the Campervan Club, visiting RSL members in hospital and managing raffles to raise funds.

26. In September 2009, Mr Murphy became a resident of Lions Haven with his wife. Mrs Murphy died in August 2012.

27. Lions Haven records recorded Mr Murphy's diagnoses were '*short term memory decline*', a history of prostate cancer and recent skin conditions. Mr Murphy was relatively independent with his activities of daily living. Ms Newman (Lions Haven facility manager) says that she understood that Mr Murphy suffered from unspecified dementia.

28. In 2013, a Psychogeriatric Assessment Scale (PAS) assessment was conducted on Mr Murphy which indicated he had a moderate cognitive impairment. The PAS assessment was administered again on 9 September 2014 and indicated Mr Murphy had a severe cognitive impairment.

29. The Lions Haven records indicate that in June 2014 it was determined that Mr Murphy was to be provided with his medication and for staff to observe that he ingested his medicine.

30. In November 2014, Mr Murphy's daily medications included Aspirin, Clopidogrel, Metoprolol, Omeprazole, Perindoprilarginine, Prednisone and Rosuvastatin.

Staff at Lions Haven

31. Ms Catherine Newman was the Facility Manager who was responsible for the day to day operations at Lions Haven. She had been in this role for approximately six years. Prior to that she was the Quality Manager at Lions Haven. Ms Newman had worked at Lions Haven for 16 years.

32. Ms Colleen Dix was the Quality Manager at Lions Haven. She had worked at Lions Haven for approximately ten years.

33. Registered Nurse (RN) Pamela Fox was the clinical nurse manager at Lions Haven. RN Fox was responsible for the overall management of the registered nurses employed at the facility. At the time of Mr Murphy's death she had been in the role for two months.

34. RN Marindire was a registered nurse with over ten years' experience. At the time of Mr Murphy's death he had been employed at Lions Haven for one month.

35. Personal Care Assistant (PCA) Florence Paul was a personal carer with over seven years' experience.

36. PCA Janelle Preston was a personal carer who had worked at Lions Haven for 18 months. Whilst working as a PCA she was also studying a Bachelor of Nursing.

37. PCAs were responsible for assisting residents with the activities of daily living such as personal hygiene and feeding.

38. Ms Caryn Wilde was the Team Leader of the environmental team which consisted of cleaning and laundry services. She had been in this role at Lions Haven for ten years at the time of Mr Murphy's death.

39. Ms Janet Mason was an environment officer with four years' experience as a cleaner. She had been employed at Lions Haven for 18 months at the time of Mr Murphy's death.

Bacban

40. Bacban is a no rinse sanitiser produced by Dominant Pty Ltd which contains Quaternary Ammonium Compound (QAC).

41. The National Occupational Health and Safety Commission (NOHSC) has declared the Approved Criteria for Classifying Hazardous Substances, 3rd Edition (Standard). This is a national standard declared by NOHSC under section 38(1) of the *National Occupational Health and Safety Commission Act 1985 (Commonwealth)* which prescribe preventive action to avert occupational deaths, injuries and diseases. Table 8 in the Standard, in conjunction with the definition of a corrosive (pH of 2 or less, or 11.5 or greater) reveals that only a substance with a concentration of more than 10% QAC is classified as a corrosive.

42. Dominant produced a Material Safety Data Sheet (MSDS) for Bacban in accordance with the National Code of Practice for the Preparation of Material Safety Data Sheets.

43. The MSDS for Bacban at the time of Mr Murphy's death was dated 2 August 2012. It provided the following information:
    a. It contained between 1 – 10% QAC;
    b. It had a pH of 7.0;
    c. First aid measures are not to induce vomiting and to immediately wash out mouth with water. Medical attention was to be sought if irritation persists;
    d. Advice to doctor was to treat symptomatically. For advice contact a PIC; and
    e. Toxicological information noted that Bacban may be harmful if swallowed. Ingestion may cause nausea, abdominal irritation, pain, mouth and throat irritation and vomiting.

44. The Technical Bulletin issued for Bacban in May 2005 recommends 2ml of Bacban in 500ml of water and 3ml in 750ml of water. The Technical Bulletin

advises that at this level of dilution it is 200 parts per million of QAC which would equate to QAC concentration of approximately 0.022%.

45. POISINDEX is a detailed toxicology database designed to identify and provide ingredient information on over 750,000 commercial, pharmaceutical and biological substances. It provides treatment information, clinical effects and range of toxicity for exposures to the listed substances along with a treatment protocol for unknown toxins.

46. NSW PIC advised that the data contained in POISINDEX is that Bacban at a concentration of below 7.5% is not corrosive[1]. NSW Poisons say that the severity and persistence of symptoms would be the major indication for hospital treatment. Therefore, callers are advised to seek medical attention if their signs and symptoms warrant it or if the patient had known and disclosed additional risk factors (eg., high risk of aspiration).

47. Glenn Connell, accounts manager at Dominant, would attend Lions Haven monthly to undertake stocktake of the chemicals at Lions Haven and order any chemicals required, train new staff to use chemicals and conduct yearly safe chemical handling training as part of Lion Haven's accreditation process.

48. Mr Connell would check the consistency and accuracy of the dispensing equipment on his attendances. As part of this process, he would on occasions connect a bottle to the Bacban dispensing container (in concentrated form) and dilute Bacban into a small bottle for use by cleaning staff.

49. Mr Connell says that doors to where chemicals were stored at Lions Haven were always locked and he required staff members to unlock these rooms for him to be able to access.

50. Chemicals were delivered to Lions Haven in concentrated or '*neat*' form and diluted by Lions Haven staff on site.

51. Bacban was delivered to Lions Haven in five litre (**L**) containers in concentrated form of 4.9% at the time of Mr Murphy's death. In keeping with definition in the Standard, this concentration of Bacban with a pH of 7.0 ± 0.5 (neutral) would be considered to be nonhazardous and non-corrosive.

52. These containers of Bacban were stored in the cleaning rooms within the three 'houses' of Lions Haven, in the kitchen and the laundry. Each bottle came with commercial labels from Dominant which included directions on how to dilute Bacban.

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[1] NSW PIC also provided information from POISINDEX that was modified in January 2018 (and therefore possibly not available at the time Mr Murphy ingested the substance), that there had been five elderly patients with dementia who had digested QAC at 10% concentration. Four of these patients developed burning oral pain and sialorrhea (drooling or excessive salivation) whereas the fifth patient developed severe symptoms and died. The patient's autopsy indicated marked corrosive injury to the gastrointestinal tract.

53. In each of the cleaning rooms, the 5L bottles of Bacban had an attachment (referred to as a smart pump) that measured the correct quantity of 5 millilitres (**mls**) which was to be diluted in 750mls of water. This was a manual process and therefore, as many witnesses conceded during evidence, there was the potential for a dilution error (ie., for more than 5mls to be used in a bottle) by the user pressing the smart pump more than once.

54. In the kitchen and laundry, the 5L bottles of Bacban were automatically diluted. This process involved the Bacban being connected to piping at the dilution station, the dilution station being connected to a water source and the amount of dilution to be specified on the wall unit. Once connected, the user would press the button which would result in the Bacban and water being drawn up at the requisite levels (5mls per 750ml). As this was an automatic process, there would be no dilution error provided the dilution process was set up correctly.

Training of Lions Haven staff

55. Lions Haven provided its cleaning staff with information regarding use of chemicals at orientation. They also worked with a buddy for the first shift and were shown how to dilute chemicals and locating the relevant MSDS sheets. Records produced by Lions Haven indicated that Ms Manson completed her buddy shift on 24 July 2013.

56. Ms Manson (and other staff) undertook training with Dominant called '*Safe and Effective Use of Cleaning Chemicals*'. Ms Manson recalled in her statement to QPS that she had undertaken this training recently. Lions Haven indicated this training occurred approximately every six months. Lions Haven produced a document titled '*training assessment*' which appears to be a record that Ms Manson completed the training on 22 May 2014 and 9 September 2014 however the assessment module was only completed once and it is unclear on which date Ms Manson completed the assessment. The assessment completed by Ms Manson is unmarked.

57. Mr Connell explained that the training for new staff dealt with how to use the dilution station to safely dilute chemicals, safe storage of chemicals and the process for mixing chemicals properly. The training included an instructional video and an online module. The training also included advice that if an accident or emergency occurred to contact the 24 hour accident emergency line contained on each of the bottles.

58. Mr Connell says that staff were trained to use the entirety of the smaller bottle before refilling the bottle from the larger containers and that the smaller bottles should be emptied completely every seven days and air dried.

59. Ms Manson had never undertaken the process of diluting Bacban because she did not use this product but was aware of the process to dilute Bacban and the dilution rate.

60. PCAs and nurses were also provided with education from Lions Haven on how to access the MSDS form which contained relevant chemical information and the importance of putting chemicals away.

61. Mr Connell says to his knowledge the staff at Lions Haven were using the chemicals supplied at the correct dilution levels.

Cleaning of Mr Murphy's room

62. Ms Manson says that upon commencing work on Friday 21 November 2014, she collected the keys for the cleaning room and used the keys to open the cleaning room and retrieve her work cleaning trolley.

63. Ms Manson says that the work trolley had:
    - Two bottles of '*Pink Panther*' which was a disinfectant and contained pink liquid
    - One bottle of '*LCC*' which was bleach and contained clear liquid
    - One bottle of glass cleaner and contained blue liquid
    - One bottle of stainless steel cleaner and contained pink liquid
    - One bottle of Harmony which was air freshener and contained clear liquid
    - One bottle of furniture polish and contained brown liquid
    - One bottle of Bacban a sanitizer and contained clear liquid
    - One smaller bottle (600mls) of Bacban that had a spout rather than a spray nozzle
    - Broom
    - Mop
    - Paper towels
    - Soaps, moisturising cream and other items for resident's rooms

64. Ms Manson gave evidence that the bottles for Harmony and Bacban were both 750 mls.

65. Ms Manson commenced cleaning all the rooms within 'A' house, which included Mr Murphy's room.

66. Ms Manson had her break for 20 minutes at 0900 and locked her work trolley in the cleaning room.

67. At some point after her break and before 1030, Ms Manson saw Mr Murphy walking with his 4-wheelie walker and they had a conversation. Ms Manson says that Mr Murphy was not making any sense.

68. Mr Murphy left Lions Haven with a number of other residents on a day trip.

69. Ms Manson had another break at 1030 and again locked her work trolley in the cleaning room.

70. After her break, Ms Manson started to vacuum all the rooms (leaving the cleaning trolley in the cleaning room). She entered Mr Murphy's room to vacuum and noticed a lot of ants in the drain area and up the wall of the bathroom.

71. Ms Manson went to the cleaning room and removed a bottle called Harmony, an air freshener, which was in a clear bottle and had clear liquid. She sprayed the ants in Mr Murphy's room. She used this product because it had previously been used to kill ants and it was a multipurpose as it could also be used to freshen up Mr Murphy's bathroom. Ms Manson conceded that she had not been trained to use Harmony as an insecticide.

72. Ms Manson could not recall where she put the spray bottle after doing this. She then continued to vacuum the remainder of the rooms.

73. The CCTV footage[2] shows Ms Manson entering Mr Murphy's room with a bottle at approximately 1134. The label on the bottle cannot be identified on the CCTV footage. When Ms Manson exited the room at 1136 she was only carrying a vacuum cleaner.

74. Ms Manson was adamant in her statement to QPS and in her evidence in chief at the inquest that she did not use Bacban to kill the ants in Mr Murphy's room as she rarely used this chemical however in cross-examination she indicated that she '*probably didn't check the label*' on the bottle but believed it was Harmony because of the smell. When asked if it was possible that she used a bottle of Bacban and not Harmony, Ms Manson replied '*it's possible but I don't recall it being that*'.

75. Ms Manson's rationale for why it was not Bacban was inconsistent. In her statement, Ms Manson said that one of the reasons she did not use Bacban was because the smell made her feel ill. However in cross-examination, Ms Manson indicted that Bacban was odourless and Harmony smelt like baby powder. Later in re-examination she indicated Bacban had a strong smell.

76. Ms Manson finished work at 1230.

77. When Mr Murphy returned to Lions Haven he went to the main dining area to eat lunch. He returned to his room at approximately 1348.

78. PCA Preston went into Mr Murphy's room to shut the windows as the air conditioning had been turned on.[3] PCA Preston says she could hear Mr Murphy coughing in the bathroom. She went to Mr Murphy and saw him leaning over the bathroom sink coughing and salivating. PCA Preston did not see Mr Murphy consuming any liquid when she entered the room.

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[2] CCTV footage from Lions Haven which consisted of 4 or 5 cameras within the facility were reviewed and a timeline produced by Ms Manson. When the footage was produced to police it contained the incorrect date and time stamp however the correct time could be ascertained by adding 22 hours to the time on the stamp.
[3] CCTV footage indicates this occurred at 1434.

79. PCA Preston attempted to ascertain what had occurred from Mr Murphy however he did not tell her what had occurred. PCA Preston gave evidence that Mr Murphy was usually able to communicate and relay events.

80. PCA Preston saw an open bottle of Bacban that was half empty. She described the bottle as a 600ml or 700ml bottle with clear fluid. The spray nozzle lid was not on the bottle and she did not see the lid in the bathroom.

81. PCA Preston was unable to determine how much of the Bacban Mr Murphy had ingested because the bottle was half empty. At no stage did she ever advise anyone of how much Bacban had been consumed because she did not know how much had been consumed.

82. PCA Preston asked PCA Paul to get a nurse because she believed Mr Murphy had consumed some of the Bacban and he was in distress as he was coughing, salivating and complaining of burning.

83. PCA Paul says that she recalls PCA Preston requesting her assistance in Mr Murphy's room[4]. Mr Murphy was leaning over the basin in the bathroom. PCA Paul observed a white spray bottle of Bacban on the top of Mr Murphy's toilet. The lid of the bottle was on the dresser. Next to the lid of the Bacban was a spray lid for one of Mr Murphy's creams. PCA Paul says she took the bottle and rang for a registered nurse to attend straight away[5]. PCA Paul left to attend on other residents.

84. PCA Preston stayed with Mr Murphy and instructed him to rinse his mouth out with water and spit the water out. Mr Murphy kept saying '*it is burning*'.

85. RN Marindire says that at approximately 1445, PCA Preston called him in the main office to advise that Mr Murphy had possibly swallowed Bacban and requested his assistance.

86. RN Marindire attended Mr Murphy's room[6]. He observed a bottle of Bacban with its lid unscrewed and had approximately 200mls left in it and two other bottles, believed to be hand lotion and some sort of other cream, also with unscrewed lids. RN Marindire says he took the bottle of Bacban to RN Fox and he returned to Mr Murphy's room, aware that RN Fox was contacting the PIC.

87. RN Marindire says that he took Mr Murphy's blood pressure, pulse, oxygen and temperature. He recorded these on his hand to input into the computerised records later. PCA Preston says that she attempted to use the blood pressure cuff to obtain Mr Murphy's blood pressure twice however it said error both times. To her knowledge, Mr Murphy's blood pressure was not able to be ascertained.

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[4] CCTV footage indicates PCA Paul enters at 1435

[5] CCTV footage indicates PCA Paul was in Mr Murphy's room for approximately 18 seconds and she left and then returned approximately a minute and a half later to retrieve the bottle of Bacban.

[6] CCTV footage indicates this occurred at 1439.

88. RN Marindire says that Mr Murphy indicated he could not swallow however he did not appear to have any visible signs of pain.

89. A resident list[7] from Lions Haven indicates the following:

	@ 14:48 after taking Sanitizer
	37.2 temp, increased breathing. @
MAXWELL MURPHY "MAX"	loss of voice. BP 187/76 Pulse 59 17.30hrs

90. It is difficult from the above record to ascertain whether the observations recorded (37.2 temp, increased breathing, BP 197/76, pulse 59) were observations taken at 1448 or 1730.[8]

91. RN Fox cannot recall when, however she was handed a bottle that had the label Bacban on it. It was a 700ml bottle however she could not recall how much liquid was left in the bottle.

92. RN Fox believes either PCA Paul or RN Marindire gave it to her. RN Fox gave evidence she was told that between 10 – 15mls had been consumed (however in the incident log she completed later she recorded 20mls had been consumed). It is unclear what other information, if any, RN Fox was aware of (for example that Mr Murphy was complaining of a burning sensation).

93. RN Fox contacted the PIC. The call was taken by NSW PIC given the proximity of Lions Haven to NSW and Optus routing in those areas. The NSW PIC provided records made of the contents of the call which indicate it was made at 1546 (NSW time, so 1446 Queensland time). The call was taken by Sarah Paterson, a poisons information specialist who held a Bachelor of Science.

94. Ms Patterson recorded that she had been advised that Mr Murphy had recently ingested 10 - 15ml of diluted Bacban. It was recorded that Mr Murphy was asymptomatic[9]. Ms Patterson recorded '*Reassurance. Dilute. Gastrointestinal irritation possible. Keep NBM? Advised not expected to cause burn*'. NSW PIC explained that:
    a. Dilute refers to advising the victim to have a cup of water to lessen the taste and discomfort from the substance;
    b. Gastrointestinal irritation refers to potential side effects like mild nausea, vomiting and diarrhoea; and
    c. RN Fox asked if Mr Murphy needed to be kept nil by mouth and Ms Patterson advised that this was not necessary as it was not expected to cause a burn.

95. The NSW PIC records accord with RN Fox's recollection and the record she made in Mr Murphy's record at 1504. The only additional information was that

[7] Which would appear to be the handwritten document RN Marindire refers to in his statement however this was not clarified with RN Marindire as he was unable to be located to give evidence.
[8] CCTV footage indicates an observation box was taken into Mr Murphy's room at 1445 and 1704.
[9] Which does not accord with PCA Preston's observations

RN Fox says she was advised to monitor Mr Murphy regarding any further changes.

96. NSW PIC advised that the advice provided by Ms Patterson was consistent with the MSDS and Poisindex.

97. NSW PIC indicated that the advice provided depends on the information provided by the caller, specifically the amount consumed and the symptoms experienced by the patient. Where a large amount has been ingested (often associated with self-harm attempts) because the corrosive effects and effects on the central nervous system increases, the recommendation provided is for the patient to be taken to hospital.

98. At the time, RN Fox did not consider providing NSW PIC with details of the medication Mr Murphy was taking. During her evidence, she conceded that it would have been important to have advised that Mr Murphy took Clopidogrel as this was a blood thinner (and therefore Mr Murphy was at a higher risk of heavy bleeding as this medication interferes with the ability to coagulate).

99. RN Fox says that if she believed that Mr Murphy had drunk 100mls or more she would have called QAS immediately, regardless of whether or not Mr Murphy was displaying any adverse symptoms.

100. RN Fox attended Mr Murphy's room. RN Fox observed PCA Preston attempting to take Mr Murphy's vital observations however Mr Murphy was uncooperative and swinging his arms. RN Fox says she advised PCA Preston to take Mr Murphy's temperature and continue observations. PCA Preston says that when RN Fox attended she was still trying to obtain Mr Murphy's blood pressure. PCA Preston says that RN Fox told her not to worry about the blood pressure.

101. RN Fox went to see Mr Murphy. He was rinsing his mouth with water. RN Fox inspected Mr Murphy's mouth for trauma which she says was not present. Mr Murphy said his mouth was burning. RN Fox says that Mr Murphy was not distressed.

102. It did not occur to RN Fox to clarify with the person who located the bottle how much had been consumed, despite accepting it was important to know how much had been consumed. She accepted what she had been told earlier by either PCA Paul or RN Marindire earlier.

103. RN Fox says that RN Marindire advised that he had given Mr Murphy a drink of milk which Mr Murphy had consumed.[10]

104. RN Fox relayed the information she had received from NSW PIC to RN Marindire. It was established that Mr Murphy was to be monitored and if there were any changes to Mr Murphy, the QAS would be contacted.

[10] PCA Preston indicated this occurred later.

105. PCA Preston says that RN Fox advised that Mr Murphy would experience a burning sensation and to keep Mr Murphy nil by mouth.

106. CCTV footage indicates both RN Marindire and RN Fox departed Mr Murphy's room at 1453. PCA Preston remained with Mr Murphy.

107. RN Fox also advised Ms Newman of the incident. Ms Newman says she requested RN Fox to ask the staff to document everything that happened and to keep her up to date with what happened. Ms Newman departed the facility at approximately 1500.

108. Prior to leaving (following the completion of her shift which ended at 1430 however the entry was made at 1501), RN Fox created an incident log entry which was that '*PCA reported Max had swallowed approx. no more than 20mls cleaning fluid that was in his bathroom, contacted emergency poisons hotline advised to observe will probably experience burning sensation to mouth and upset stomach*'.

109. RN Marindire says he tasked PCA Preston with performing 15-minute observations of Mr Murphy. CCTV footage indicates PCA Preston remained with Mr Murphy (only exiting his room for very short periods of time and returning with items like water or more senior staff members) until 1623.

110. EN Waddington says that after commencing her shift at 1500 and receiving handover, RN Marindire requested her to stay with Mr Murphy and monitor him.[11] This is not reflected in the CCTV footage. EN Waddington is not involved in Mr Murphy's care until 1617 for about 40 seconds and then does not enter Mr Murphy's room until 1706.

111. PCA Preston says that Mr Murphy was in a moderate amount of distress from the time she found him in the bathroom until about 1540.

112. At 1540, PCA Preston says that Mr Murphy was not coughing as much and his voice had slightly returned to normal. She considered he had improved. PCA Preston assisted Mr Murphy to have a shower as his clothes were soaking wet from spitting and rinsing. Mr Murphy was not distressed however he was still coughing.

113. After the shower, Mr Murphy was sitting in his armchair. He was coughing constantly and complained of being unable to swallow. PCA Preston

[11] EN Waddington also says Mr Murphy was coughing up blood which was only a small amount when she was first monitoring him however the blood became more and more. She says that at 1605 she asked PCA Preston to get RN Marindire because it appeared to her that Mr Murphy's condition had deteriorated and to call the QAS. It is most likely that EN Waddington is referring to events from 1706 onwards however she is mistaken as to the extent of her involvement and tasking PCA Preston. PCA Preston rejected the assertion that she was asked to contact QAS, or that EN Waddington was involved in Mr Murphy's care other than attending his room at 1617 prior to the conclusion of her shift.

encouraged him to cough in the bin and a towel as he was salivating excessively and clear substances were coming out of his mouth.

114. PCA Preston noticed that there was some blood staining on the towel Mr Murphy was coughing on. She described this as a small patch of frank blood. PCA Preston appropriately escalated her concerns by approaching RN Marindire who was with EN Waddington at the nurses' station. PCA Preston reported that Mr Murphy was coughing up blood. CCTV footage indicates that at 1616, PCA Preston left Mr Murphy's room and returns a minute and a half later with RN Marindire and EN Waddington. RN Marindire and EN Waddington leave 40 seconds later.

115. PCA Preston says that RN Marindire and EN Waddington attended and RN Marindire looked at Mr Murphy. She says no vital observations were taken nor was Mr Murphy's mouth viewed. RN Marindire advised that the blood was irritation from the coughing. PCA Preston says that other than the presence of blood coming from his mouth, Mr Murphy had not deteriorated. He was slightly short of breath which PCA Preston presumed was as a result of fatigue from constant coughing.

116. EN Waddington denies RN Marindire, PCA Preston and herself went back into Mr Murphy's room and that RN Marindire had indicated the blood was just an irritation from coughing. RN Marindire's statement is silent with respect to this issue.

117. PCA Preston says that Mr Murphy stayed in this condition until the end of her shift at 1630.

118. At 1626, just prior to her shift ending, PCA Preston recorded in Mr Murphy's resident progress notes that when she checked on Mr Murphy at 1430 he was leaning over his bathroom sink, salivating and coughing with an open bottle of Bacban on the sink. PCA Preston got Mr Murphy to rinse his mouth out until RN Marindire arrived. She later showered Mr Murphy. PCA Preston recorded that the time of making her entry Mr Murphy was in his armchair in his bedroom, coughing constantly with blood staining observed. Mr Murphy was commenting that it hurt to swallow. PCA Preston handed over to the afternoon staff to check Mr Murphy every 15 minutes and he was to remain nil by mouth until further notice.

119. At 1630 when PCA Preston's shift ended, PCA Paul took over monitoring Mr Murphy. She says that she checked on Mr Murphy every ten to 15 minutes.

120. RN Marnindire says that at approximately 1645, PCA Paul contacted him to advise that Mr Murphy was not breathing properly. PCA Paul says that at approximately 1655 she noticed Mr Murphy was not doing well so she pushed the emergency button in the dining room to alert other staff to attend. RN Marindire attended Mr Murphy's room and observed Mr Murphy to have blood and thick saliva coming from his mouth. Mr Murphy put his hands around his throat and stated that he was not breathing very well. RN Marindire immediately phoned for an ambulance. PCA Paul packed Mr Murphy's belongings for hospital

and then returned to looking after the other residents. Later, oxygen was administered to Mr Murphy.

121. The CCTV footage reveals that the first occasion PCA Paul attends Mr Murphy's room after PCA Preston's departure was at 1648 and she was in his room for two seconds and left his room with his dirty linen. At 1654 both RN Marindire and PCA Paul attend Mr Murphy's room for approximately 25 seconds. At 1702 PCA Paul and a kitchen hand attend Mr Murphy's room. The kitchen hand leaves ten seconds later to push the duress button in the lounge area. PCA Paul leaves 16 seconds later to press the duress button. PCA Paul and RN Marindire then attend to Mr Murphy from 1703 onwards.

122. At 2047 and 2048, RN Marindire made entries into Mr Murphy's resident progress notes that Mr Murphy's blood pressure was 187/76 and his temperature was 37.1C at 2047. The time of the observations is clearly incorrect and likely refers to the observations taken at either 1448 or 1730. Given the vital observations recorded by QAS on their arrival, it is most likely these observations were from 1448.

Queensland Ambulance Service

123. The QAS electronic Ambulance Report Form (eARF) indicates that 000 was contacted at 1701[12]. A minute later, QAS Advanced Care Paramedics (ACP) Lu and Todd were on route to Lions Haven.

124. The eARF records that ACPs Lu and Todd were at Lions Haven at 1715 but were not with Mr Murphy until 1722[13].

125. Mr Murphy was anxious with an ulcerated mouth and coughing up frank blood (an approximate estimate of 100mls). Mr Murphy indicated he could not breathe. Mr Murphy also appeared confused and ACP Todd assumed Mr Murphy had dementia. ACP Todd applied oxygen to assist Mr Murphy, even though his breathing was within acceptable limits, to assist to calm him.

126. The eARF records that staff at Lions Haven advised that Mr Murphy '*had consumed approx. 200mls of ammonia based disinfectant 20mins prior to QAS arrival*'.

127. ACP Lu says that he was told by Lions Haven staff that Mr Murphy had drunk approximately 200mls of disinfectant and showed him a bottle which he understood was similar to the one Mr Murphy had drunk from. ACP Lu was unclear whether or not this was the bottle Mr Murphy had drunk from but acknowledged this was a possibility.

[12] There is likely to be some slight difference between the timings used by QAS and Lions Haven
[13] CCTV footage confirms ACPs Lu and Todd entered Mr Murphy's room at this time

128. ACP Todd says that when they arrived, Lions Haven staff showed them a bottle from which they understood Mr Murphy to have consumed liquid from. ACP Todd indicated in her original statement that the bottle was 200ml with only a small amount of liquid in it. As no one knew how much had been consumed, ACP Todd assumed Mr Murphy had ingested 200mls. ACP Todd says that Lions Haven advised that Mr Murphy had been found approximately 20 minutes prior to QAS attendance. In her supplementary statement, ACP Todd indicated she did not have an independent recollection of the size of the bottle and could not explain why a 600ml bottle was seized by the QPS from GCUH other than perhaps the reference in the eRAF to 200ml influenced her recollection of the size of the bottle.

129. Neither ACP Lu nor Todd could not recall taking a bottle to GCUH however indicated it would be standard practice to take the bottle from which liquid had been consumed from to assist hospital staff. The CCTV footage indicates that a bottle was transported with Mr Murphy by the QAS to GCUH. It would be reasonable to infer that this was the bottle of Bacban that PCA Preston had found in Mr Murphy's bathroom after the ingestion.

130. The eARF recorded Mr Murphy's medications. ACPs Lu and Todd indicated it was important to note that Mr Murphy was taking a number of blood thinners (Clopidogrel and Aspirin) which would have an impact on his blood's ability to clot when active bleeding occurred.

131. ACPs Lu and Todd departed Lions Haven with Mr Murphy, advising GCUH on route of their pending arrival. They arrived at GCUH at 1757.

Notification of next of kin

132. Unsatisfactorily, Mr Murphy's next of kin were advised of his admission to the GCUH by GCUH rather than Lions Haven. Mr Murphy's next of kin were understandably distressed that Lions Haven did not contact them to advise that Mr Murphy had been transported via QAS to GCUH.

133. Mr Murphy's daughter says she was contacted by GCUH at approximately 1830 to request permission to intubate Mr Murphy. On her way to the hospital she contacted Lions Haven and spoke to RN Marindire at approximately 1845.

134. RN Marindire indicates in his statement that he had been busy attending to other residents at Lions Haven and that Mr Murphy's daughter contacted him (and were aware of Mr Murphy's admission to GCUH) just as he was about to call her. The records supplied by Lions Haven indicate that during the same shift another resident from Lions Haven fell and required admission to hospital.

135. RN Marindire made an entry in Mr Murphy's resident progress notes at 2031 which indicates that he was contacted at 1730 to attend Mr Murphy's room. He observed Mr Murphy to have difficulty breathing and coughing blood from his mouth. QAS were contacted immediately and Mr Murphy's daughter was

contacted at 1745[14]. Mr Murphy's next of kin strongly disagree that they were contacted at 1745.

Gold Coast University Hospital

136. When Mr Murphy arrived at the ED at GCUH he was sitting up and having difficulty maintaining his airway. He was continuously spitting out bright red blood and saying he could not breathe. A large clot was observed on the inside of Mr Murphy's mouth. It was recorded that there was difficulty maintaining Mr Murphy's oxygen saturations.

137. Mr Murphy was intubated and ventilated in the ED to maintain his airway. A CT scan post intubation showed no evidence of perforation but there was oedema of the oropharynx and tissues around the endotracheal tube. Bilateral lower lobe lung collapse was noted.

138. The Queensland PIC received a call at 1800 regarding an 88 year old male who had swallowed 200ml of Bacban who was vomiting blood and unable to lie flat. The Queensland PIC advised that the National Poisons Register indicated this product contained 4.9%[15] QAC which was not considered corrosive at this concentration however given Mr Murphy had significant symptoms supportive care and review with a gastroenterologist to consider whether to perform an endoscopy was appropriate.

139. Both Queensland and NSW PICs indicate that an ingestion of 4.9% QAC would not be considered corrosive however advice is often based on the symptoms displayed by the patient and a risk assessment conducted based the amount consumed and concentration of the chemical. A gastroenterology review was recommended for Mr Murphy due to the severity of his symptoms.

140. There is an unnamed entry made in the GCUH records (later enquiries revealed the entry was made by Dr Murphy) '*poisons contacted: corrosive substance if symptomatic suggest gastroscopy via gastro team*'[16].

141. Dr Murphy was asked to comment on the discrepancy that his note indicated he had received information from the PIC that Bacban was corrosive when the PIC indicated it was not corrosive. Dr Murphy was unable to recall the telephone call and whether he was told Bacban was corrosive or non-corrosive. He conceded it was possible he was told it was non-corrosive however he inadvertently recorded it as corrosive. Dr Murphy says that whether or not the substance was

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[14] The most likely explanation, although this was not able to be confirmed as he did not give evidence, is that RN Marindire was mistaken by an hour regarding the time of his call with Mr Murphy's next of kin.

[15] There was some discrepancy between the information provided by NSW and QLD Poisons Information Centres as to whether the concentration of Bacban contained 3% or 4.9% of Quaternary Ammonium Compound. This discrepancy was because at the time Mr Murphy ingested the Bacban the National Poisons Register indicated the concentration was 4.9% however on 18 March 2015 this information was amended by Dominant to include a 03/2014 product that contained 3% Quaternary Ammonium Compound.

[16] Exhibit J5, page 9

corrosive or not would not have altered Mr Murphy's treatment on the basis that Mr Murphy was symptomatic and treated as such.

142. Whilst Mr Murphy's family were in attendance, nursing staff showed them the bottle of Bacban that had been transported from Lions Haven to GCUH with Mr Murphy. It was in a plastic bag. Mr Murphy's granddaughter took photos of the bottle and measured the bottle as the bottle did not have any measurements on it. The bottle's diameter was approximately 6cm, the length of the bottle was approximately 14.5cm and the neck of the bottle was approximately 6cm. The bottle had liquid in it up to approximately 7cm.

143. Mr Murphy was admitted to the ICU where he underwent an endoscopy. It showed excessive bleeding and friability of the mucosa and the mucosa appeared necrotic. The endoscopy proceeded only into the upper third of the oesophagus and was abandoned due to a high risk of perforation. A diagnosis of corrosive esophagitis was made.

144. Mr Murphy subsequently developed ventricular tachycardia followed by cardiac asystole. He died at 0420 on 24 November 2014.

145. The bottle of Bacban was seized by QPS from GCUH. QPS described the bottle as a 600ml bottle with a spray lid. Approximately 200ml of liquid remained in the bottle.

Reviews conducted and changes made

146. On Saturday 22 November 2014, Ms Newman attended Lions Haven to review Mr Murphy's records and the CCTV footage (between 1245 and 1430) to try and determine how Mr Murphy had accessed the bottle of Bacban. Ms Newman did not see Mr Murphy take a chemical bottle from anywhere.

147. On Monday 24 November 2014, Ms Newman, Ms Dix, RN Fox and Ms Wilde undertook a number of enquiries and remedial steps with respect to the circumstances in which Mr Murphy had ingested Bacban.

148. Ms Newman requested that Ms Wilde contact Ms Manson to attend Lions Haven in order to ascertain if Mr Murphy could have removed any items from the cleaning trolley. According to Ms Newman, at that stage, the working theory was that Mr Murphy had removed a bottle of Bacban from the cleaning trolley.

149. Ms Dix contacted Mr Connell to advise of the incident and to request that they check their processes as Lions Haven were reviewing all of their processes.

150. Mr Connell attended and confirmed that the automatic dispensing units were working correctly. Mr Connell also attended Mr Murphy's room with Ms Newman. In the room was a small brown bottle which had an alcohol odour present.

151. Ms Dix and Ms Wilde say that no concerns were raised by Dominant with respect to the decanting process. All of the witnesses indicated that the 5L containers of Bacban were removed from the cleaning rooms in houses A, B and C and

therefore the only Bacban that remained at Lions Haven were containers connected to the automatic dispenses in the kitchen and laundry. Ms Wilde says it was Mr Connell's decision to remove the 5L containers of Bacban and that she did not have any concerns with the manual decanting process however the change would mean less chemicals in the cleaning rooms. Mr Connell says that it was Ms Wilde's decision to remove Bacban from the cleaning rooms.

152. Ms Wilde conducted a meeting with cleaning and laundry staff which Ms Manson attended along with four other staff. Staff were 're-*educated'* regarding chemical usage and storage and instructed to keep all chemicals in the locked part of cleaning trolleys and to take cleaning trolleys into room. Staff were also advised that Bacban had been removed from the cleaning rooms and was now only available in the kitchen and laundry (connected to the automatic dispensers). This meeting occurred prior to Ms Newman determining how Mr Murphy had accessed the Bacban bottle.

153. Ms Newman reviewed the CCTV footage from 21 November 2014 from 0800 onwards. During this review she identified that after vacuuming Mr Murphy's room, Ms Manson entered Mr Murphy's room with a spray bottle and when she exited his room she did not have the spray bottle. Ms Manson was asked to watch the CCTV footage. She observed that she did not remove the bottle of Harmony from Mr Murphy's room. Ms Manson told Ms Newman that she used Harmony to kill the ants in Mr Murphy's room.

154. Ms Manson gave evidence that following the incident she was counselled by both Ms Wilde and Ms Newman to be more vigilant and not to leave chemicals in residents' rooms.

155. On the same day, RN Fox contacted the PIC again because she was concerned that Mr Murphy had deteriorated and been admitted to ICU when the PIC had only advised that he would experience a burning sensation and sore stomach. She was concerned that the PIC had not provided her with the correct information.

156. The call was taken by the NSW PIC and the records for that call were as follows: '*Apparently ingested on Friday and now in ICU. (only told me towards end of conversation that he had dementia). Diluted 2ml in 500ml as well. Small accidental ingestion of diluted product would not be expected to cause this. Poss different product? If exposure to undiluted product with massive ingestion, maybe (4.9% QAC)*'.

157. NSW PIC explained that RN Fox was advised that the symptoms could either be attributed to another product or, if it was the same product, it might be the higher strength product of 4.9% QAC and that the symptoms could possibly be related to a massive ingestion of the undiluted product.

158. On 27 November 2014, a post critical incident meeting occurred at Lions Haven. Ms Newman, RN Marindire, EN Waddington attended as did a number of other staff who were not involved in Mr Murphy's care that day.

159. One of the criticisms raised was that timelines '*were not easily identified where it did not show the exact time of the action taken*'. The response to that criticism was that Ms Newman was arranging for WiFi for all tablets to enable responsive documentation.

160. The other concern was that the handwritten information contained in the registered nurse handover sheets[17] did not contain all of the actions taken and when it was taken off site[18] it was not accessible. The response to this issue was to remove paper based handover sheets and utilise the '*Sarah system*' within the electronic records and staff were instructed not to remove any clinical notations from Lions Haven.

161. In summary, Lions Haven made the following changes to their processes, procedures and policies:
    a. 5L containers of Bacban were removed from the cleaning rooms;
    b. The method of dispensation was changed so that all dispensation was via an automatic dispenser;
    c. All chemicals on the cleaning trolley are stored in the lockable part of the cleaning trolley;
    d. When cleaning resident's rooms, the cleaning trolley is taken into the resident's room so that cleaning trolleys are never left unattended;
    e. A chemical signoff sheet was introduced that is completed after each residents' room is cleaned. This document contains the list of seven chemicals on the cleaning trolley to ensure that each chemical is returned to the trolley and signed off;
    f. A daily audit of the chemicals was also introduced; and
    g. PCAs were also included in regular chemical training provided by Dominant that was provided to cleaning staff.

Autopsy findings

162. Forensic Pathologist Dr Dianne Little conducted a full internal autopsy on 25 November 2014. Toxicology testing was also undertaken.

163. Dr Little indicated that examination of Mr Murphy's brain showed changes consistent with Alzheimer's disease.

164. The autopsy found severe inflammation with mucosal necrosis (damage to the lining) extending from Mr Murphy's mouth through the pharynx and throughout the entire length of the oesophagus ending at the cardioesophageal junction (junction of the gullet with the stomach). Mr Murphy also had ischaemic changes (due to poor blood flow) of his large bowel, possible shock changes in the kidneys (acute tubular necrosis) and pneumonia was present in both lungs.

165. An enlarged dilated heart was also noted to be present with degenerative disease (atherosclerosis) in two of the main coronary arteries. There was also scarring of the heart muscle indicative of previous myocardial infarction. Dr Little

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[17] Presumably the document titled '*Resident List*' as described in paragraph 89.

[18] It is unclear who took the document off site.

recorded there was diffuse infarction throughout the left ventricle of the heart (sub-endocardial distribution), consistent with being secondary to shock. Dr Little considered that Mr Murphy's heart disease hastened his death.

166. Dr Little determined that Mr Murphy's cause of death was multi-organ failure with pneumonia due to the ingestion of a corrosive liquid. She considered that Mr Murphy's dementia and ischaemic heart disease were significant conditions contributing to his death.

167. Dr Little noted that toxicological analysis of the blood samples taken soon after Mr Murphy's admission to GCUH detected a low level of Clopidogrel.

168. Dr Little also advised that the laboratory used for analysis by pathologists did not have an available method of analysis for QAC.

Laboratory examination

169. The bottle of Bacban retrieved from GCUH was provided to Queensland Health Forensic and Scientific Services.

170. Senior Chemist Tony Peter conducted an analysis of this bottle and a control substance of Bacban provided by Dominant.

171. Mr Peter's analysis says that the bottle provided by QPS was a 500ml bottle[19]. The weight of the liquid in this bottle was measured and weighed 325.7 grams which equates to approximately 325 mls.

172. Mr Peter concluded that the bottle supplied for analysis contained 5% of benzalkonium chloride. This indicates that the bottle contained Bacban in '*neat*' or concentrated form and it had not been diluted according to the instructions provided by Dominant.

173. After the scientific analysis, on 21 November 2017, QPS disposed of the bottle of Bacban.

Expert evidence

Dr Michael Robertson

174. Dr Michael Robertson is a pharmacologist and forensic toxicologist with 20 years' experience. He provided an expert report dated 1 June 2018.

[19] It is unclear how Mr Peter made this conclusion nor whether the volume of the entire bottle was measured.

175. Benzyldimethyldodecylammonium chloride is one of a number of QACs often referred to collectively as benzalkonium chloride[20].

176. Dr Robertson indicated that following exposure to low concentration (less than 1%) of QAC is generally absent or mild and transient. Adverse effects of ingesting QAC in concentrations above 1% are primarily mucosal and tissue irritation however depending on the concentration and amount ingested more serious adverse effects including death can occur.

177. Dr Robertson explained that common adverse effects following QAC ingestion include contact irritation, vomiting, diarrhoea and abdominal pain. More serious effects include muscle weakness, aspiration pneumonitis, central nervous system depression leading to coma and shock, hypotension, renal failure and death due to circulatory failure.

178. Dr Robertson was of the opinion that both the concentration and the total amount of QAC ingested needed to be considered together. Whilst the majority of documented poisonings suggested a concentration of 10% or more may reasonably lead to significant adverse effects including death, the European Medicines Agency also refers to an amount ingested of between 100mg/kg and 400mg/kg as being fatal. Dr Robertson considered that if Mr Murphy consumed 200mL of Bacban (at 5% concentration) then this would amount to 139mg/kg and within the potentially fatal range.

179. Dr Robertson indicated that it was likely the effects of ingesting 200ml of Bacban (at either 3% or 5% concentration) would be greater than ingesting 10 – 15ml. The higher the concentration, the greater the corrosive or irritant damage and the total amount of QAC (ie., the greater volume) ingested which leads to a larger amount being absorbed into the blood stream and a lesser dilution effect from liquids such as gastric fluid.

180. He noted predicting the actual physical effects at each concentration and volume would be speculative given variations in an individual's susceptibility to the chemical, the general age and health of the individual, any co-morbidities and whether any other medication/s contributed to the adverse effects. Dr Robertson considered the Clopidrogrel, an anti-coagulant medication, may exacerbate associated haemorrhage and bleeding because clotting from bleeding does not occur.

181. Dr Robertson considered that the symptoms Mr Murphy displayed (coughing, complaining of a burning sensation and coughing up frank blood) to be symptoms of having ingested QAC. The presence of frank blood indicated that first aid and hospital treatment should be sought to clarify the amount of damage that had been done.

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[20] Dr Robertson referred to benzalkonium chloride throughout his report and evidence however for ease and consistency, I have continued to refer to the compound as QAC.

182. Dr Robertson would not have expected the level of corrosive damage that was described in the autopsy report as a consequence of ingesting 10 – 15 mL of Bacban (at either 3% or 4.9% concentrate). However he considered that ingestion of either of these concentrations equivalent to or exceeding 200ml could have reasonably caused Mr Murphy's injuries, particularly in the presence of Clopidrogrel.

183. Following receipt of Dr Robertson's report inquiries were made with two external laboratories as to whether Mr Murphy's blood sample taken at his admission to GCUH could be testing for the presence of QAC. Neither had a method available.

Dr David Spain

184. Dr David Spain is a fellow of the Royal Australian College of General Practitioners and the Australasian College for Emergency Medicine. He holds specialist registration with AHPRA in emergency medicine. Dr Spain provided reports dated 14 December 2019 and 13 January 2020.

185. Dr Spain considered that ingestions of QAC were not a common occurrence and as a result there is not a large enough database to identify in medical literature the toxicity of different strength formats. QAC is known to cause chemical burns rapidly on contact with tissues. The effects will depend on the strength of the ingested substance as well as volume and duration of exposure. The higher the strength, the higher the volume or longer duration cause increased risk.

186. Dr Spain was presented with a variety of scenarios and asked what steps should have been undertaken by Lions Haven. These scenarios included various amounts of Bacban having been consumed and different concentrations of Bacban (concentrated versus diluted).

187. Dr Spain was of the opinion that, regardless of the amount believed to have been ingested, when he was first located, Mr Murphy was described as coughing, salivating and complaining that it was burning. Because of these symptoms, Dr Spain considered it was appropriate for medical advice to be sought (including advice from the PIC) and for medical treatment to be provided to Mr Murphy. This could either be by a general practitioner (**GP**) or, noting that the events occurred on a Friday afternoon and a GP may not be available to attend, by transporting Mr Murphy to hospital.

188. Dr Spain also considered it appropriate when (approximately an hour later) Mr Murphy was observed coughing and having difficulty swallowing, medical treatment (GP or hospital) should have been sought.

189. Finally, when Mr Murphy began coughing frank blood, Dr Spain was of the opinion that medical treatment should have been sought for Mr Murphy.

190. Dr Spain noted that changing the volume of the amount thought to have been consumed by Mr Murphy would not change the treatment that should have been provided, however an increased volume made it more likely that a more significant injury was present.

191. Dr Spain concluded that Mr Murphy's death would not have been prevented if he had been taken to hospital earlier. This is because the greatest opportunity to reduce damage and potential for death lies in the first aid management (which must be provided within seconds to a few minutes). First aid is less effective when exposure has been due to ingestion because first aid attempts to dilute the liquid often leads to vomiting and further exposure of injury to the upper gastrointestinal tract when the chemical agent is regurgitated. Additionally, the patient may be unable to swallow due to the chemical ingested. Dr Spain noted that first aid in these instances is often limited and likely to be poorly effective. Dr Spain considered that significant knowledge of Bacban would not be expected in nursing home nursing staff or most medical practitioners so would only occur after expert advice is received from organisations like the PIC. Such consultation generally leads to delay outside the first aid timeframes. Thus, the time to recognise the problem and then access advice may be in excess of when first aid may be given or benefit may be anticipated.

192. Finally, Dr Spain noted that Mr Murphy had significant age and co-morbid illnesses including likely pre-existing ischaemic heart disease based on his regular medications, his age and post mortem findings. These increased his risk of death greatly.

Conclusions

193. Mr Murphy suffered from dementia, which was known by Lions Haven. This placed him at an increased risk of injury and misadventure as symptoms of dementia include forgetfulness and impairment of thinking abilities.

194. Ms Manson received appropriate chemical training, including safe storage of chemicals.

195. Ms Manson cleaned Murphy's room with a cleaning bottle which she did not take with her on her departure from his room. The only cleaning bottle located with Mr Murphy was a bottle of Bacban. I find that Ms Manson entered Mr Murphy's room with a bottle of Bacban and failed to remove this bottle from his room. There is no suggestion this was done deliberately, however this inadvertent error has directly let to Mr Murphy's death.

196. There was no system in place at Lions Haven to ensure that no chemicals and/or other cleaning items were inadvertently left in residents rooms.

197. Mr Murphy ingested an unknown quantity of liquid from the bottle of Bacban and possibly other substances that were located open in his bathroom. PCA Preston appropriately escalated her concerns regarding Mr Murphy to nursing staff.

198. RN Fox appropriately contacted the PIC however the PIC were given incorrect information – namely that Mr Murphy had consumed 10 – 15ml of Bacban and Mr Murphy was asymptomatic. The information that should have been conveyed was that Mr Murphy had consumed an unknown quantity of Bacban and he was coughing, salivating and complaining that '*it is burning*'. Additionally, information about Mr Murphy's medications, in particular the blood thinners, were not provided by RN Fox to NSW PIC nor did NSW PIC seek this information.

199. Had the PIC been advised that Mr Murphy was symptomatic, a recommendation would have been made for medical attention to be sought for Mr Murphy.

200. Had the PIC been advised that Mr Murphy had ingested a large quantity of Bacban, a recommendation would have been made for medical attention to be sought for Mr Murphy.

201. Instead, RN Marindire and RN Fox determined it was appropriate for Mr Murphy to remain at Lions Haven and that the QAS would be contacted if Mr Murphy deteriorated.

202. PCA Preston, with the benefit of having completed her nursing qualifications and obtaining experience in this area, says that the QAS should have been contacted once Mr Murphy was discovered having consumed Bacban because the quantity he had consumed was unknown.

203. Whilst some observations were obtained from Mr Murphy, these were inadequate as they were not recorded adequately in Mr Murphy's records.

204. When Mr Murphy started coughing up blood, PCA Preston again appropriately escalated her concerns to nursing staff. RN Marindire and EN Waddington attended but did not examine Mr Murphy nor did they take his vital observations. Despite an earlier agreement that QAS were to be contacted if Mr Murphy deteriorated, this did not occur.

205. Dr Spain considered that medical attention should have been sought for Mr Murphy at the time his ingestion was discovered and then later when he started to cough up blood.

206. After considering all of the evidence, I find that the response by Lions Haven nursing staff to Mr Murphy's ingestion and subsequent deterioration (at approximately 1616) was inadequate and Mr Murphy should have been transferred to hospital at around 1440 and 1620.

207. Instead, medical treatment was not sought for Mr Murphy until approximately two and a half hours after his ingestion was discovered. Earlier presentation to hospital is unlikely to have prevented Mr Murphy's death however it would have enabled Mr Murphy to have been made more comfortable.

208. I find it unlikely that Lions Haven staff indicated to QAS that Mr Murphy had swallowed 200mls of Bacban. No staff member had observed Mr Murphy

consuming the Bacban. It is more probable that the ACPs observed the bottle and the liquid remaining and adopted a '*worst case*' position that the maximum amount had been consumed (ie., the different between the full container and the liquid remaining).

209. The bottle of Bacban located in Mr Murphy's room was transported by QAS with Mr Murphy to GCUH.

210. The bottle of Bacban has been described as 500ml, 600ml and 750ml. Unfortunately, the bottle has been disposed of. I find that the bottle was a 600ml bottle (based primarily on the dimensions of the bottle in the photographs taken at GCUH by Mr Murphy's family) and had approximately 325 mls of liquid remaining (based on the analysis by Mr Peter).

211. The bottle was not diluted according to the instructions provided by Dominant and instead of a dilution of 0.022% (the percentage of QAC if the dilution instructions were followed) the bottle contained 4.9% of QAC, which is the same concentration as the 5L bottles that were delivered to Lions Haven in concentrated form. Despite this information being available from February 2016 onwards, no investigations were undertaken by either the QPS, the Coroners Court of Queensland or Lions Haven to attempt to determine the identity of the person who failed to dilute the Bacban bottle according to the dilution instructions and whether this was intentional or unintentional. Due to the length of time that has elapsed since the subject events, such enquiries now would be futile.

212. The treatment provided by the QAS and GCUH was appropriate.

213. Mr Murphy's next of kin should have been advised of his transfer from Lions Haven to GCUH when the transfer occurred.

214. While Mr Murphy's blood sample (taken upon admission to GCUH) was not able to be accurately analysed, I conclude on the basis of the evidence that Mr Murphy died following an ingestion of QAC which was contained in the bottle of Bacban left in Mr Murphy's room. I find that there was a significant ingestion (ie. substantially more than 10 – 20ml) on the basis of the autopsy findings and expert evidence.

Findings required by section 45

215. In accordance with section 45 of the *Coroners Act 2003*, a coroner who is investigating a suspected death must, if possible, make certain findings.

216. On the basis of the evidence presented at the inquest, I make the following findings:

    a. The identity of the deceased is Maxwell Murphy;
    b. Mr Murphy died as a consequence of ingesting an unknown volume of Quaternary Ammonium Compound from a bottle of Bacban that was left in his room at Lions Haven for the Aged.

c. The date of Mr Murphy's death was 24 November 2014;
d. The place of death was Gold Coast University Hospital, Southport;
e. The cause of death was multi-organ failure with pneumonia due to the ingestion of a corrosive liquid.

Recommendations in accordance with section 46

217. Section 46 of the Act provides that a Coroner may comment on anything connected with a death that relates to:
    a. public health and safety;
    b. the administration of justice; or
    c. ways to prevent deaths from happening in similar circumstances in the future.

218. After considering the evidence, it should be presumed that where an ingestion of a substance is unwitnessed and the patient is unable to give an indication of how much was ingested that the worst case scenario be assumed (ie., if 1L bottle and 900ml remaining, assume 100ml consumed; if 500ml bottle and 100ml remaining, assume 400ml consumed).

219. I direct that my findings be forwarded to POISINDEX so that the circumstances surrounding Mr Murphy's death can be included in their database.

220. I close the inquest.

James McDougall
Coroner
18 December 2020