QUEENSLAND COURTS

CORONERS COURT OF QUEENSLAND

FINDINGS OF INQUEST

CITATION:	**Inquest into the death of Ann Parsons**
TITLE OF COURT:	Coroners Court
JURISDICTION:	Brisbane
FILE NO:	2012/3750
DELIVERED ON:	6 October 2017
DELIVERED AT:	Brisbane
HEARING DATES:	11, 18, 21 & 23 November 2016
FINDINGS OF:	Ms Christine Clements
CATCHWORDS:	Health care related death, brain cancer (Glioblastoma Multiforma – grade IV), adequacy of pre & post-operative neurosurgical and nursing care

REPRESENTATION:

Counsel Assisting:	Ms Melinda Zerner
Co-counsel	Ms Holly Ahern
Royal Brisbane and Women's Hospital	Mr J Allen QC
Dr Holly Bernardi	Ms J Rosengren i/b TressCox
Dr G Tollesson	Mr S Keim SC i/b Ashurst Lawyers
Dr H Curley	Ms T Inoke i/b Avant Law
Nurses Dabelstein, O'Hagan, Stanford, Hickman & Thompson	Mr G Rebetzski i/b/ Roberts & Kane Solicitors
Ms Amiss	Mr S Ames i/b Meridian Lawyers

Contents

Introduction

1. Ann Louise Parsons (Mrs Parsons) was born on 12 February 1953 and was 59 years of age when she died on 15 October 2012 at the Royal Brisbane & Women's Hospital (RBWH).[1]

2. She had recently graduated as a Registered Nurse (RN). Many of her family members also work in the medical field. Her son, Mr David Pickham is also a RN and a professor in nursing in the United States. Her daughter is an Emergency and Intensive Care RN. Mrs Parsons' daughter-in-law (Mr Pickham's wife) is a surgeon in the United States. It was on Mrs Parson's first day at work that she experienced the symptoms of an unknown brain tumour. Inexplicably, she could not locate her car.[2]

3. She died due to Glioblastoma Multiforme – grade IV, which had been surgically treated. Glioblastoma Multiforme is an invariably incurable disease.[3] It is the most aggressive form of glioma which, despite surgical resection and post-operative radio and chemotherapy, has a poor prognosis. Survival rates for treated patients are approximately 30% at year one and 14% at year two.[4]

4. In the context of such a devastating disease, the inquest sought to understand the circumstances leading to her death, particularly the health care provided.

Onset of illness and transfer to Brisbane

5. Mrs Parsons lived in Yeppoon on the Capricorn Coast of Queensland. On Wednesday 26 September 2012, Mrs Parsons presented to the Rockhampton Base Hospital Emergency Department with a six-day history of occipital headache with nausea.[5] The following day she was transferred by the Royal Flying Doctor Service to the RBWH for further management. The transfer letter from the Rockhampton Base Hospital stated Mrs Parsons had:
   a) No vision deficits or weakness in her limbs
   b) A Glasgow Coma Score (GCS) of 15 and her pupils were equal and reacting to light at 3mm
   c) No focal neurology
   d) Normal pathology results
   e) A CT scan of her head showed a lesion on her parieto-occipital region.[6]

6. She had not been taking any medications at the time and was started on steroid treatment 8mg of intravenous dexamethasone and regular dexamethasone as advised.

Ward arrangements upon admission

7. Mrs Parsons was admitted to Ward 8AS, the neurosurgery ward at the RBWH on Thursday 27 September under the care of Dr Tollesson. Dr Tollesson was

[1] Ex E5, p 4
[2] Ex D1, p1
[3] Ex C2, p7
[4] Ex E1, p2
[5] Ex E5, p81
[6] Ex E5, p74

one of six neurosurgeons at the RBWH. The neurosurgeons worked in two teams with junior medical resident doctors and senior registrar support. Each neurosurgeon had a set elective day per week for surgery, with two surgeons sharing Wednesday. Dr Tollesson's elective surgery day was Friday.[7] Ward rounds usually involved all registrars completing rounds together, particularly on a Monday or a Friday. Alternatively, they were split into two teams. On a Friday, all registrars attempted to see all the patients, as the doctors on call required them to be familiar with the patients. The registrars on one team would often see patients on the other consultant's team.[8]

8. The registrar would review a patient at the ward rounds. The resident (more junior doctor) would document the findings or discussions and arrange for any tests that were required. The registrar's role was to report to the consultant as required and to provide regular updates.

9. Dr Tollesson's usual practice was a minimum of one ward round per week. He did not have a specific time for ward rounds. If there was a deterioration or change in a patient's condition, he would adjust the frequency of his ward rounds as necessary. If he operated on a patient on a Friday, he would review the patient early the following week, accompanied by a principal house officer.[9] Dr Papacostas, who was Dr Tollesson's senior registrar, recalls Dr Tollesson usually conducted at least two ward rounds per week.[10]

Initial assessment

10. On admission on Thursday 27 September 2012 to the RBWH, Mrs Parsons was assessed by Dr Cunneen, who was Dr Tollesson's junior house resident officer. The new diagnosis of left parieto-occipital lesion was documented. Dr Cunneen detailed Mrs Parsons' history and completed a neurological assessment.[11] She noted Mrs Parsons' daughter reporting that her mother had decreased attention span/concentration and word finding difficulties in the last month. Mrs Parsons had a history of migraine as a child but no history of cancer or malignancy.

11. The CT imaging report from Rockhampton recorded a 4 x 1.37 x 1.48cm area of lobulated rim enhancement in the left parieto-occipital region associated with perifocal oedema. The radiologist included a glioblastoma or an abscess in the differential (possible diagnoses) for this appearance.[12]

12. On Friday 28 September 2012, Mrs Parsons underwent a MRI of her head. The radiologist, Dr Varzehi reported, 'Heterogeneous, irregular thick rim enhancing lesion within the left parieto-occipital lobe demonstrates adjacent vasogenic oedema and multiple satellite lesions. This is suspicious for a high-grade glioblastoma. The other differentials include abscess, primary CNS lymphoma or anaplastic astrocytoma'.

[7] Ex B1, p3
[8] T1-116,15
[9] T1-117,15
[10] T1-59,30
[11] Ex E5,p113-115
[12] Ex 5, p92

13. ‘The tumour is limited to the left cerebral hemisphere with no extension into the right side’.[13]

14. At this point the differential diagnoses had broadened to four possibilities, the most likely being a high-grade glioblastoma.

Period as an in-patient prior to surgery

15. Mrs Parsons was independent and self-caring throughout her admission until her surgery on Friday 12 October 2012. Surgery occurred on the 15th day from the date of her admission. She went on regular day leave with her family and friends. Her son, Mr Pickham arrived from the USA on 2 October 2012 and visited daily including most ward rounds. He acted as family communicator with medical staff. Her GCS remained at 15/15 and she was reasonably asymptomatic. Mr Pickham recalled during a period of leave that Mrs Parsons’ balance was off, and on one occasion she had difficulty reading a menu and ordering a meal.[14]

16. Dr Tollesson was on leave during the first week of October 2012. He attended the annual Neurosurgical Society of Australia conference which was scheduled on the Gold Coast.[15] Dr Papacostas, Dr Tollesson’s senior neurosurgical registrar was also on leave that week. [16]

17. Dr Tollesson did not hand Mrs Parsons over to another neurosurgeon. He recollects that he handed over to his registrars, Dr Papacostas and Dr Ashish. He said, ‘I supposed they knew about the patient, and if anything would arise….they can contact me anytime.’[17]

18. Dr Tollesson thought he spoke with Dr Papacostas on the Monday or Tuesday of his leave but accepted in oral evidence that he may have spoken with another registrar, Dr Ashish. He says he was prepared to leave the Gold Coast if Mrs Parsons wasn’t well.

19. Dr Tollesson confirmed in oral evidence he did not intend for Mrs Parsons to be operated on during the week he was on leave, but if there was a complication, he could be contacted.[18] In his statement he says Dr Papacostas reassured him that Mrs Parsons’ clinical condition was stable with no signs of mass effect or neurological deficit.

20. Dr Tollesson accepted it was an option for him to hand Mrs Parsons over to another surgeon and ask that the surgeon review her and carry out the surgery. He chose not to because there were quite a lot of neurosurgeons attending the conference and there were not as many available as usual. He did not consider there was any urgent or absolute need to operate very quickly on Mrs Parsons. He considered that it might be good for Mrs Parsons to be in hospital, in order to continue the dexamethasone to reduce the swelling and for her to catch up with

[13] Ex E5, p49
[14] T1-17,15
[15] T1-112,40
[16] T1=61,25
[17] T1-113,40-42
[18] T1-113,45; T1-114,1

the occupational therapist and the nursing team. He considered the surgery could be carried out the following week.

21. A review of the medical record during the preoperative period, including a summary of evidence from Dr Tollesson, Dr Papacostas and Mr Pickham is detailed separately and marked Annexure A.

Summary of pre-operative period and issues arising

22. A full neurological assessment was undertaken on admission on 27 September by a resident house officer (the most junior level of medical officer in the hierarchy). Mrs Parsons was admitted under consultant neurosurgeon, Dr Tollesson's care. The consultant did not see Mrs Parsons on admission and possibly not until 9 October, prior to surgery which occurred on 12 October.

23. The resident house officer discussed Mrs Parson's admission and neurological assessment with the registrar, Dr Zaheer who confirmed CT and MRI imaging, continuation of dexamethasone and pre-op bloods. There was no apparent consideration of speech pathology or neurological assessment of Mrs Parson's speech. The patient's daughter indicated Mrs Parsons had been having difficulty finding words over the previous month.

24. This was the only *documented* neurological assessment in the medical record prior to surgery.

25. It was always anticipated that Mrs Parsons would require surgery. However, it was not communicated to Mrs Parsons or her family that there was no plan or likelihood of surgery being scheduled, short of an emergency, in the following week commencing Monday 1 October.

26. The consultant Dr Tollesson did not choose to hand over Mrs Parsons' care to any other neurosurgeon despite planned leave with his family including to attend the neurosurgical conference for the entire week following her admission.

27. The notes do not indicate the fact that Dr Tollesson was away on leave for the week commencing Monday 1 October. He had handed over to his registrars, one of whom was also on leave. He confirmed in oral evidence that he did not see Mrs Parsons that week, relying on his registrars to keep him informed if there was any change in her condition. If so, he would return, but his intention was that there would be no surgery in that week.[19]

28. This was unsatisfactory communication for the patient, her family and the neurosurgical ward team who did not know what was planned for Mrs Parsons other than anticipated surgery at some undetermined date. In a team care model where the consultant and senior registrar were both aware of their planned absence for the whole of the week following admission, it was essential that the consultant communicate clearly what was planned and how the patient was to be cared for during this absence.

[19] T1-113, 45-47, T1-114, 3

29. During that first week of October, Mrs Parsons was reviewed by the neurosurgical ward team each day. This was a changing group drawn from members of the two neurosurgeons' teams. The senior registrar in Dr Tollesson's team, Dr Papacostas was also away the same week.

30. The notes in the medical record are scant and generally do not identify which doctors, and of what designation, were in attendance. Despite their brevity, the notes reveal and confirm the lack of communication and the absence of knowledge of the details of the proposed plan for Mrs Parsons' care. On Monday 1 October, the combined team undertaking the ward review recorded that Mrs Parsons was awaiting operating theatre time and date 'this week'. That was never a possibility, short of emergency, according to Dr Tollesson.

31. The next day, on Tuesday 2 October, it was recorded the team was 'awaiting plan from Dr Tollesson'.

32. By Wednesday 3 October, it was recorded the operation was 'likely next week'. This was the first day Mr Pickham spoke with a doctor, who was not identified in the record, seeking information regarding his mother's treatment plan.

33. On Friday 5 October, the ward round recorded the family had observed a subtle gait change in Mrs Parsons' walk as well as a change in her speech. The only action recorded indicated Mrs Parsons was on the emergency list for the following week. There was no indication of follow-up occurring regarding these observed changes in Mrs Parsons' presentation or any indication the information was handed on.

34. There was no indication on the record that upon admission Mrs Parsons had a one month history of word finding difficulty nor that her family were now reporting a change in her speech. This was in the context of Mrs Parsons having daily leave with family members who were in the best position to recognise a change in her speech. This was the second occasion when it appears there was a missed opportunity for assessment and documentation of her speech capability and measurement of any deficit at a particular date.

35. It was on the following week commencing Monday 8 October that Dr Tollesson's senior registrar, Dr Papacostas returned to work after leave. It was the first time he became involved in Mrs Parsons' care. He commenced communication with the family and attempted to arrange surgery, noting a degree of frustration in the family. The ward round that day recorded the possibility of an operation next day, awaiting discussion with Dr Tollesson.

36. There was discussion between Dr Papacostas and Dr Tollesson who decided it more appropriate that he undertake the surgery. He proposed a particular surgical technique guided by fluorescence to identify tissue to be resected. His registrar was not authorised to perform surgery using this technique. The position and extent of the tumour was 'difficult' and he considered it prudent and appropriate that he should undertake surgery.

37. Dr Tollesson's access to theatre time was on a Friday. Mrs Parsons was not considered by Dr Tollesson to be an emergency case and her surgery was planned for Friday 12 October. Dr Papacostas investigated the possibility of access to theatre in another surgeon's list but this did not eventuate. During that week there was no entry in the medical record indicating either Dr Tollesson or Dr Papacostas considered whether further preoperative neurological assessment, particularly of her speech capability was required.

38. Dr Tollesson only saw Mrs Parsons on one undocumented occasion prior to surgery, possibly on 9 October. There is no certainty about this date.

39. Mr Pickham recalled only one occasion when he saw and spoke with the consultant, Dr Tollesson, who he described as very polite and apologetic that he had been away and there had been delay.

40. Record keeping consistently failed to record which doctors and other members of the overall ward treating 'team' attended upon Mrs Parsons and family members present. Notations of what occurred and discussions were also extremely brief.

41. In these circumstances, where there is conflict of recollection or simply absence of memory, it is very difficult to reach any firm conclusions about the events in issue. In particular, it is difficult to establish the date and length of consultation by Dr Tollesson and Dr Papacostas with Mrs Parsons when her son was present.

Surgery on Friday 12 October 2012.

42. The consultant, Dr Tollesson was the surgeon, assisted by Dr Papacostas, who completed the operation report.

43. Mrs Parsons entered the operating theatre at 08:25.

44. The procedure was a stealth and 5-ALA guided craniotomy and debulking left parieto/occipital high grade glioma. During the procedure 3 litres of normal saline was administered.

45. Mrs Parsons was transferred to the Recovery Room at 12:23.

46. There was no indication of any adverse event occurring during surgery.

47. Post-operative instructions included routine post-anaesthetic observations, neurological observations and care in the high dependency unit section of the intensive care unit. A systolic blood pressure range was set and an order for dexamethasone 4mg to be weaned over 48 hours was given. A drain was in place on suction and an MRI with contrast was scheduled for 48 hours. Measures to manage the risks of pulmonary embolism were put in place and the team was to be notified of any concerns.

48. Dr Papacostas explained that Mrs Parsons would be cared for after the operation initially in the High Dependency Unit, which was part of the Intensive Care Unit. In these units hourly neurological observations were conducted.

49. Dr Papacostas indicated there had been a subsequent change in post-operative care of patients such as Mrs Parsons. They would now be discharged to a close observation bay in the neurosurgical ward with a higher nurse ratio than the rest of the ward.

50. In the post-surgery period the following notes were made;

51. At 13:52, 'surgeon contacted. Re a slight tremor in right hand and right eye slower to react than left - monitor at this time Jason Papacostas.'

52. By the time of inquest, Dr Papacostas had no recollection of this, but did not consider the symptoms of tremor in her right hand and a slower reaction time in her right eye was indicative of anything in particular.

53. At 14:34, it was noted Mrs Parsons was confused. The notes recorded she had improved a little by 15:24.

54. At 15:42, Dr Tollesson spoke with and reviewed Mrs Parsons. Dr Papacostas was present. The nurse recorded no further orders were required. Both doctors considered Mrs Parsons did not have any new neurological deficits. Dr Papacostas intended reviewing her later in the evening. Following this review Ms Parsons was discharged to the Intensive Care Unit (ICU). Her nursing care notes stated she had a dressing in place with a small amount of ooze and a bellovac drain in place.

55. At 15:56, Ms Parsons was discharged from the Recovery Room and was admitted to the ICU.

Intensive Care Unit post-surgery 16: 47 Friday 12 October – 14:35 Saturday 13 October 2012

56. Admission notes were recorded at 16:47. Mrs Parsons was sleeping but easily rousable. Her right pupil was 4mm and her left 3mm and both were sluggish. There was no mention of confusion. Her GCS was 15.

57. Her son and other relatives visited in the ICU that afternoon. Mr Pickham was shocked at his mother's appearance, lying down with closed eyes and grimacing in pain. She complained of pain and pressure in the back of her head. She could respond verbally in an appropriate but very short manner during that period.

58. At 18:17, staff recorded Mrs Parsons could name the Prime Minister and state her date of birth but could not say where she was. Her vision was blurred. She could not identify the number of fingers held up to her. Her family visited.

59. At 20:00, another nurse who had commenced her shift an hour earlier assessed the GCS as 13 and both pupils were 3mm and 'brisk.' She made no complaint of pain. Mrs Parsons could give her name and date of birth and knew she was in hospital. She could not however, say the name or place of the hospital. She could not name the day of the week or date.

60. At 20:30, Dr Papacostas reviewed Mrs Parsons. He assessed her as alert and capable of following basic commands but disorientated as to time and place. Her pupils were equal and reactive to light but there was some right visual sensory neglect and speech disturbance. This was attributed to Gerstmann's Syndrome.

61. In his evidence, he said the syndrome referred to a dominant parietal lobe insult, characterised by Acalculia, (problems with arithmetic) left- right disorientation, finger agnosia and another symptom he could not recall.[20]

62. Dr Papacostas stated:
'She had a Gerstmann's syndrome, right-sided visual and sensory neglect and speech disturbance. It was my opinion that these findings were consistent with her tumour and the surgical resection she had undergone.'

63. Dr Papacostas subsequently advised, 'My assessment of Mrs Parsons was entirely in keeping both with her postoperative review in the PACU and also with a surgical resection involving the dominant left pareito-occipital lobe'.

64. Dr Papacostas said in evidence, it was difficult to say whether or not this constellation of symptoms was new post-surgery due to the lesion in her brain being in this particular area and that he was not sure whether or not anyone formally assessed for that.[21] He said she may possibly have had some mild symptoms pre-operatively, and definitely there might be some further symptoms as a result of the surgery. It would not be unusual and he was not concerned by it after a more definitive assessment on the Friday evening when he returned to ICU to review Mrs Parsons. He did not contact Dr Tollesson as he saw no need to do so after his review. He considered her symptoms entirely consistent with the surgery that had been undertaken. Had he been worried he would have arranged further imaging and immediately notified Dr Tollesson.

65. On Friday evening 12 October at 23:00, Mrs Parsons was reviewed by a RN who assessed GCS at 13 with equal pupils of 4mm demonstrating a brisk response and rousable. However, Mrs Parsons could not tell the nurse where she was. The nurse explained she was in hospital and she responded that she knew but could not think of the words. An hour later, the same nurse made the same observations and recorded 'hospital' as the identified place. Her pain level was not assessed.

---

[20] Gerstmann's syndrome is a cognitive impairment that results from damage to a specific area of the brain – the left parietal lobe in the region of the angular gyrus. It may occur after a stroke or in association with damage to the parietal lobe. It is characterized by four primary symptoms: a writing disability (agraphia or dysgraphia), a lack of understanding of the rules for calculation or arithmetic (acalculia or dyscalculia), an inability to distinguish right right from left, and an inability to identify fingers (finger agnosia) https://www.ninds.nih.gov/Disorders/All-Disorders/Gerstmanns-Syndrome-Information-Page

[21] T 1-71, 35-45

66. At 01:15 the nurse gave her pain relief of 5mg Endone. At 02:00 the observations were the same but Mrs Parsons' pain level was 8 out of 10. She indicated her pain had improved since the previous Endone but then gave a number above 10 for her pain. This was contradictory. The nurse considered she needed to assess the pain some other way because of Mrs Parsons' difficulty. This would appear to be an issue of cognition and/or capacity to verbally communicate.

67. The intensive care registrar, Dr Amaratunga recorded at 02:07 on Saturday morning, 13 October, that Mrs Parsons was 'still unable to find the right words, struggling to answer place, time, date, person, questions (no change since arrival from theatre) occasionally able to say where she is'. It was decided Mrs Parsons required a CT scan of her head if neurology deteriorates.

68. The next review by the same RN at 03:00 assessed Mrs Parsons' pupils as unequal with the right measured at 5mm and the left at 4mm. The doctor was informed and directed continued monitoring. 250 mL bolus of fluid was given due to low urine output.

69. An hour later at 04:00, the same nurse recorded GCS was 12, left pupil 5mm and right pupil 4mm. Mrs Parsons was unable to answer her correct name when asked. She just kept saying 'I'm at hospital. Sunday. hospital', repetitively. The nurse agreed Mrs Parsons' condition had deteriorated from the start of her shift.

70. Dr Papacostas was on call overnight and he received a phone call regarding Mrs Parsons. He was told she was more confused and her GCS had deteriorated to 12/15. He ordered a CT scan.

71. He considered one possible explanation could be electrolyte disturbances. In his evidence, Dr Papacostas said 'I did not believe that informing Dr Tollesson of the decline in the GSC was indicated during the early hours of the morning given that the outcomes of the investigation (CT brain, blood test) were pending and the decline in GCS at the time was not sufficient to warrant emergency surgical intervention.'[22]

72. The registered nurse summary of the shift indicated the GSC was highest at 13 and lowest at 11. As the night progressed the patient was saying inappropriate words when asked her last name. She could generally say she was in hospital but could not name the hospital or the city. She said 'it is not Yeppoon'. She was not orientated to time at any stage. Her pupils had become unequal over the course of the shift. The CT imaging occurred at about 05:30 and she subsequently developed nausea.

73. The radiology registrar, Dr Khan reported the CT scan as follows 'status post brain tumour parieto-occipital resection. Nature of linear hyperdensity in anterior

[22] ExB5,p4

defect? Ligating suture for PCA, calcification, surgical material. Moderate midline shift and surrounding area.'[2324]

74. This was a critical change with possible serious implications for the patient but there is no separate entry in Mrs Parsons' progress notes of this result at the time. Dr Khan stated he discussed the results with the intensive care registrar, Dr Amaratunga at 07:00. [25]Dr Amaratunga no longer remembers such a discussion and accepted there was no documentation in the medical record.

75. At the inquest, both Drs Papacostas and Dr Tollesson accepted there had been a worsening in Mrs Parsons' condition overnight. In particular, it was noted she was in a more confused state and her capacity to communicate was lessening; eventually only saying 'I am in hospital.'

76. Dr Bernardi was a neurosurgical registrar and principal resident house officer. She was part of the team involved in Mrs Parsons' care prior to surgery. Dr Bernardi was commencing a 24 hour on call shift at 07:00 on Saturday, 13 October 2012. She had been in her position for 18 months and was a member of the other group of neurosurgeons, not including Dr Tollesson. She had however, worked with Dr Tollesson during this period.

77. Dr Bernardi was aware of Mrs Parsons' admission and general history due to her participation in the ward rounds. She had not specifically met Mrs Parsons or her family at this time. She was not present in the course of the operation on 12 October or the subsequent review by Dr Papacostas in ICU that evening.

78. As the on-call neurosurgical registrar, Dr Bernardi was required to review and admit patients in the RBWH and the Royal Children's Hospital. There were also phone calls from wards within these two hospitals including the emergency department. Additionally, there were phone calls from peripheral hospitals. The shift was busy and she remained on site throughout the 24 hours.

79. She commenced with morning handover in the neurosurgery registrar office. She spoke with the neurosurgical registrar on call overnight, Dr Papacostas. Although Dr Papacostas no longer had an independent recollection of this, it was established that Dr Bernardi spoke with Dr Papacostas at about 07:00 and 08:32 on Saturday morning 13 October. Dr Papacostas confirmed Dr Bernardi was one of the groups of registrars doing ward rounds during the week leading up to surgery.

80. Dr Bernardi was informed surgery was uncomplicated. There had been concern regarding the presence of unequal pupils and increasing confusion in intensive care overnight. She was told a CT scan of the brain had been performed in the early hours and she was to chase up the results. Following handover, Dr Bernardi proceeded to the neurosurgical ward and then on to ICU.

---

[23] Ex E5, p56- Interpretation time, 0947

[24] In retrospect awareness of this information at the time of consideration of the scope of autopsy examination might have led to more discussion with the family who objected to an invasive autopsy examination.

[25] ExR5, p56

81. Prior to Dr Bernardi's arrival in ICU, the ICU registrar, Dr Sonawane examined Mrs Parsons. His record was in preparation for Mrs Parson's discharge to the ward at 10:00. Normal serum sodium level was measured at 137 and he assessed her GCS as 14. It was noted Mrs Parsons had difficulty expressing words (expressive dysphasia) and was repeating words said by the other person during conversation (echolalia). No other focal neurological abnormalities were noted and Dr Sonawane indicated Mrs Parsons was obeying commands. His assessment was Mrs Parsons was ready for discharge.

82. Dr Cohen was the intensive care specialist who, with Dr Sonawane, reviewed the CT scan results for Mrs Parsons. He authorised her discharge from the ICU. He expressed the view Mrs Parsons' neurological status had not deteriorated since her ICU admission. There had been concern that her speech was repetitive and orientation was worsening and this prompted a CT scan which demonstrated a likely stroke. He said subsequently, her disorientation did not seem worse and her conscious level remained stable. She was awake and responsive and he considered there was no reason for her to remain in intensive care. He reviewed the blood tests and the scan but does not recall performing a physical examination. It was likely he relied on a summary of the information from his registrar, Dr Sonawane when she was admitted as well as observations, a review of the blood tests and the CT scan.

83. He agreed there had been a decline in her neurological status overnight but did not classify this as progressive. He considered she was stable and the neurological deficit manifested mostly in her speech. There was discussion with the neurosurgical team (Dr Bernardi) who felt Mrs Parsons was appropriate to be transferred under neurosurgical team care to the ward. Dr Cohen said there was no specific management from an intensive care perspective warranted by the CT results. The neurosurgical plan was for observation, which could occur on the neurosurgical ward. He said most attention would be paid to the patient's response to obeying commands when monitoring to check for any deterioration following the ischaemic episode.

84. Dr Cohen agreed it was the decision of the consultant in charge of ICU that discharge was appropriate. The team would then complete the discharge documentation and the accepting team would then be contacted. That team would sometimes review the patient themselves and sometimes there would be a handover as well, once a bed was available. He stated this process was not a consultant to consultant process and is usually undertaken by a junior member of the accepting team. Occasionally, there would be a consultant to consultant discussion, but usually this was done by junior doctors.

85. Dr Cohen confirmed if either the treating team or the receiving team are not happy with the proposed discharge, then there is discussion and compromise reached. There would be consultant to consultant discussion if the treating consultant requested a patient remain in ICU.

86. Immediately prior to Dr Bernardi's assessment of Mrs Parsons in ICU, the weekend physiotherapist, Ms Amiss made an entry at 11:29 after her review of Mrs Parsons. She recalled Mrs Parsons was initially asleep, in a seated position in bed when she arrived. She woke her and assessed her GSC as 12/15. (This was approximately an hour and a half after Dr Sonawane made his entry of GCS of 13.)

87. The entry also recorded the physiotherapist encouraging the patient to cough but Mrs Parsons was not following commands. She was however, able to transfer out of bed with minimal assistance and was standing for a while before being seated in a chair. Her observations (blood pressure, heart rate, pulse) were not impacted by this activity. She recorded Mrs Parsons saying her pain score was 5/10 due to headache. She could not recall whether Mrs Parsons was eating. The physiotherapist therefore, directed that Mrs Parsons could stand out of bed as tolerated and could be transferred with assistance on the ward. She had no recollection of conversations with any other staff members.

88. At about 11:10, Dr Bernardi reviewed Mrs Parsons and recorded the entry at 11:37. Dr Bernardi reviewed the medical notes, and talked with the staff caring for Mrs Parsons, and the ICU doctor. She had a four-minute telephone conversation with Dr Papacostas at 11:38. Dr Bernardi reviewed the records in the ICU system which included the entry of the senior ICU registrar, Dr Sonawane made at 10:00.

89. RN Hickman was the nurse caring for Mrs Parsons in ICU in the period prior to discharge to the ward at 14:35 on the afternoon of Saturday 13 October. She recorded her GCS as 12 at 13:00 and 13:47. She also recorded that Mrs Parsons was repeatedly saying she was in hospital and obeying simple commands. She did not think Mrs Parsons' condition declined during her shift. She recalled Mr Pickham being quite concerned about his mother's speech, confusion and less responsiveness. RN Hickman said this was not uncommon.

90. RN Hickman could recall Dr Bernardi performing the assessment of Mrs Parsons and some discussion but not the details. She agreed there had been deterioration overnight regarding speech. Her recollection was that Mrs Parsons was quite drowsy; keeping her eyes closed a lot. She could recall Mrs Parsons expressing pain and at 08:00, Mrs Parsons was saying her pain was 12/10. The nurse did not think she was being accurate regarding her pain level. The expression was seen to be related to her confusion and difficulty with speech. Endone was given.
91. At 13:47 she recorded 'tolerating water and tablets'. She agreed that this was consistent with her not having a diet at that time.

92. She performed the handover to Clinical Nurse (CN) Stanford in the neurosurgical ward and, at the time, her understanding was that there were no abnormalities detected in the CT. She handed over accordingly. It was at the time of giving her evidence at the inquest that she became aware the CT showed a new left occipital infarct, a moderate shift in the midline and surrounding oedema. She said she did not have this information at the time of handover. This is consistent

with Mr Pickham's recollection that he was told the CT scan had not shown anything.

93. It was clarified that the nursing discharge document was commenced by RN Dabelstein who completed her shift at 07:30 on the morning of 13 October. RN Hickman conducted hourly observations from 08:00. She was the last person to update the nursing discharge document which was then saved under her name at 08:02. 'That's the last time I saved it.'[26] She explained the ward staff would refer to the nursing discharge summary and medical discharge summary when she handed over verbally to the ward nurse.[27]

94. In relation to any instruction provided to the ward from ICU regarding the frequency of observations, RN Hickman said it was a little unclear. Usually, she expected there might be something in the neurosurgical notes, because they are going to the neurosurgical ward.

95. Dr Bernardi's note did not set any particular monitoring and observation requirement and so Nurse Hickman expected the ward staff would 'probably clarify but generally they did four hourly obs'.[28]

96. RN Hickman updated some details in the nursing discharge document but not after 08:02. She agreed in her evidence that the discharge document recorded the GCS as 13. However, on the observation chart with medical call criteria, she recorded GCS at 08:00 and 12:00 as 12, and then the next nurse recorded the GCS as 11 at 14:35.[29]

97. She confirmed she had not correctly updated the GCS on the nursing discharge form where the GCS was stated as 13. However, she maintained she did not think there had been any deterioration in Mrs Parsons' condition over the shift and Mrs Parsons was answering questions the same as earlier.

98. Dr Bernardi was informed by the ICU registrar, Dr Sonawane that there were no significant concerns and the CT scan was available. Mrs Parsons was sitting up, out of bed with eyes open when assessed by Dr Bernardi. She said she was 'picking at' a tray of food in front of her. She then said she was not sure what the food was and it may have been a tray of thickened fluid they were trialling.

99. Dr Bernardi assessed the movement component of the GSC at 6 out of 6 via a range of increasingly complex tasks. She reviewed Mrs Parsons' speech via questions and requests to write a sentence and complete simple maths. It was difficult for Mrs Parsons to respond verbally and Dr Bernardi noted her pre-existing dysphasia. She thought Mrs Parsons had a Gerstmann's Syndrome (which had already been diagnosed and documented by Dr Papacostas.) She concluded the verbal component of the GSC was 3-4/5.

[26] T2-70, 41
[27] T2-71, 8-11
[28] T2-78, 14-28
[29] T2-71, 24-28

100. Dr Bernardi then contacted Dr Papacostas to discuss the neurological deficits to clarify whether these were consistent with her preoperative and post-operative state. The significant assessment to be made was whether or not Mrs Parsons was stable or whether the neurological deficits were progressing. The discussion led to agreement that the findings were consistent with Dr Papacostas' earlier findings on the previous evening. Therefore a decision was reached that Mrs Parsons was fit for discharge to the ward and agreement with the proposed ICU discharge plan as proposed by Dr Sonawane.

101. Dr Bernardi noted post-operative deficits that progressively worsened would be concerning as they may indicate progressive swelling, bleeding, thromboembolic infarction or seizures.

102. Dr Bernardi reviewed the CT brain scan which had occurred at 05:15 including a comparison with the prior preoperative CT, (on 27 September). Dr Bernardi observed the recent CT scan revealed a resection cavity filled with air and the surgical route taken. There was peri-lesional oedema, previously present on the preoperative scan, and a new area of hypodensity posteriorly to the resection cavity in the left parieto-occipital area. She expressed the view the likely infarction developed due to coagulation of supplying blood vessels during an attempt to resect as much tumour as would be safely possible. She recalled discussing the results of the CT scan with both the ICU registrar Dr Sonawane and senior neurosurgical registrar, Dr Papacostas. Dr Papacostas agreed that the CT scan revealed largely expected findings.

103. Dr Bernardi considered that despite a new area of infarct, there was no indication that Mrs Parsons should remain in the ICU. She did not consider there was any reason to discuss the patient or CT with the consultant, Dr Tollesson. She would have done so if she had significant concerns.

104. The entry recorded by Dr Bernardi at 11:37 in the ICU record is as follows:

> D1 (day 1) Post resection high-grade glioma with ALA
> Confused, echolalia, moves all limbs to commands with significant prompting
> Can follow 1 stage commands
> To all questions she answers 'I am in hospital'
> Minimal drain output
> P (plan): Drain out
> D/c (discharge) to ward
> MR (magnetic resonance imaging) next few days to clarify hypodensity on scan (? PCA stroke).

105. There was no direction from Dr Bernardi about the frequency of observations to be undertaken in the neurosurgical ward. Her assumption, based on 18 months experience, was that observations for a patient returning to the neurosurgical wards after surgery from ICU would be two hourly observations overnight until medically reviewed or otherwise discussed with her.

106. Dr Bernardi had contacted Dr Tollesson on 5 occasions on 13 October. She had worked with Dr Tollesson for about 18 months and had been a member of his team at one stage. She could no longer recall the conversations but considered it inconceivable that Mrs Parsons was not discussed. Dr Tollesson however stated the conversations he had with Dr Bernardi that day were not about Mrs Parsons.

107. Dr Tollesson stated he was not informed of the findings of the CT scan indicating there had been a moderate midline shift and surrounding oedema and new signal infarction. At the inquest, he stated these findings were significant and should have been advised to either the on-call neurosurgeon or him. Had he been informed of the CT results he said he would have requested that Mrs Parsons remain in ICU and ordered a repeat CT scan within 12 hours. He may also have implemented drug therapy.[30]He said had Mrs Parsons remained in ICU there would have been closer monitoring with 1-1 or 1-2 nursing.

108. At the time of the CT imaging report, Mrs Parsons' sodium levels were normal. With respect to the subsequently identified sodium problem, Dr Tollesson stated he could have given hypertonic sodium which reduces swelling. The dose of the dexamethasone could have been increased to 8mg, four times a days.

Issues of concern during ICU stay

109.

(a) The absence of a formal assessment of Mrs Parsons' speech capacity prior to surgery, left the medical and nursing team without an appropriate base level for comparison purposes.

(b) The GSC has specific components to objectively assess consciousness by evaluating the eye, verbal, and motor responses. However, there appeared to be some individual variability between different people within short periods of time. This may have contributed to the verbal handover from ICU nursing to neurosurgical ward where an average score of 13 was given. A recent GCS had been 11.

(c) The verbal communication of the CT between the Radiology registrar and the ICU registrar at about 07:00 was not recorded in the ICU notes.

(d) The medical discharge summary made at 10:20 recorded GCS at that time as 14. The summary was not updated with a GCS closer to the time of discharge which included an assessment of 11.

(e) The verbal handover from the ICU nurse to neurosurgical ward nurse wrongly stated the 05:00, 13 October, CT scan had not shown any concerns (when there had been a new ischaemic infarct, oedema and a shift in the midline when compared to the previous CT available.)

[30] T2-71, 24-28

(f) The nursing handover document had been commenced by another nurse on the earlier shift and subsequently, had not been fully updated, including no reference to available information about the CT performed at 05:00.

(g) The neurosurgical medical discharge notation recording the plan for the patient stated- 'MR next few days to clarify hypodensity on scan (?PCA stroke.)' The plan gave no guidance or direction to look for any particular change in status of the patient to report upon.

Discharge to Neurosurgical Ward at 14:35 on Saturday 13 October 2012

110. Mrs Parsons was transferred from the ICU to the neurosurgical ward at 14:35 on the day following surgery, Saturday 13 October 2012. It was fourteen hours later when she was found unconscious in her bed at about 04:25 on Sunday 14 October 2012.

111. CN Stanford explained the nurses worked generally in three teams to cover the 30 bed neurosurgical ward. In her team of three, the ratio was one to eleven patients, 'and within that team we have allocated patients'.[31] All nurses receive a hand-over at the start of their shift to ensure there is ability to cover each other during any breaks.

112. CN Stanford had started the 12 hour shift at 07:00 and was working through to 19:00. She had worked in neurosurgery for six years at the time. She received a bedside hand-over from ICU Nurse RN Hickman.

113. They assessed Mrs Parson's GCS together. The assessment was of her eye opening response, verbal response and motor response. CN Stanford assessed Mrs Parsons' verbal response by asking three questions: (a) Time, what is the date today? (b) Place, where are you? and (c) Person, what is your name?

114. Mrs Parsons' verbal response was incomprehensible or inappropriate. Her motor response was assessed by limb power by command which she was able to obey. Her pupil reaction was assessed by shining a torch light in both eyes with an equal reactive response.

115. During handover Mrs Parsons was verbalising saying 'yep yep' and 'um um'.[32]The ICU nurse confirmed this was her baseline and she had been quite dysphasic since surgery. The ICU nurse confirmed her responses were inappropriate [33]or incomprehensible. CN Stanford could not assess whether or not Mrs Parsons was confused.

116. CN Stanford assessed Mrs Parsons as 11 on the GCS at 14:35 on 13 October. The last assessment in ICU at 13:00 was 12. The difference was in the area of

[31] 31 T1-32, 30-40

[32] Earliest statement says um um, later statements say yum yum

[33] Meaning a mismatch of answer to the question for 'inappropriate'; and ' incomprehensible' for a verbal response to a question that could not be understood at all

verbal assessment. During the period she was in ICU, Mrs Parsons' GCS had been assessed hourly and was documented as 13/15 from 21:00 on 12 October. From 04:00 on13 October, she was assessed as 12/15. When admitted to ICU post-surgery Mrs Parson's GCS had been 15.

117. CN Stanford stated she was not advised there were any concerning issues relating to Mrs Parsons. By the time of the inquest, CN Stanford could not recall whether Mrs Parsons had a CT scan or whether she was told that she had an ischaemic event. At inquest she said if a CT had been done the normal process would be ICU would hand this information over verbally, or the ICU notes themselves, or information would be in any plans or reviews in the discharge notes from ICU.[34]

118. CN Stanford recalled about 15 minutes after Mrs Parsons' arrival on the ward her son visited and he confirmed his mother had been saying 'yep yep' and 'um um' in ICU.

119. There is a dispute over this issue in the sense that CN Stanford stated her son, Mr Pickham did not voice any concerns regarding his mother at all. She recalled she was with Mrs Parsons when he arrived on the ward and he then helped her eat. She recalled speaking with him again just before he left. She said he did not express any concerns about his mother.

120. Mr Pickham however, stated he did express concerns. Specifically, he said 'it was late in the afternoon when we were able to visit my mum. I attended the ward with my daughter and nephew. On arrival to mum's bedside, she was again worse, except this time she kept repeating "I do not know how much this is going to cost me." She could not open her eyes due to the "pressure"'.

    It was meal time and her tray was at her side. The nurse was clearly overwhelmed and, being a nurse myself, I understood to give her space. I checked in with her to see how mum was a short time later. She said that she received her from ICU and that everything was as expected. I told her that mum is worse than before and is now repeating and not responding appropriately. She reiterated that she will watch her overnight. I said she cannot feed herself, and asked if someone was going to help her with her trays. The nurse said she will get to her when she can. I asked if I could go ahead and feed her and she said yes. We fed mum red Jell-O - in fact my three-year-old daughter did. She was in a lot of pain and could not eat well. It was distressing to my nephew and visiting hours were closing. Before leaving, I got both my daughter and nephew to hug mum, to which she replied in broken speech–"I love you, be good" - these were her last words to us.

    I searched for the nurse and remember clear as today, she was holding a urinal and I stopped her. She was perturbed that I was asking her anything. I said I feel like my mum is not well enough for the floor, she is not really eating and is confused and not responding appropriately to commands, she is in pain, she is not getting better, she is getting worse. The nurse huffed, (and I say this with

[34] T!-3328-32

great diffidence - being a nurse, I understand her role and that feeling of family members wanting 1-1 care), she appeared distracted and not really listening to what I was telling her. She vainly promised to check her soon but reiterated that she has other patients she needs to get to first. I could not fathom what type of patient was more critical in her case load than my mother, but without questioning, I backed away. I remained concerned but could not stay at her bedside and took the kids home. We trusted the system.'[35]

121. CN Stanford said Mr Pickham did not voice any concerns about his mother with her. It would seem to be this particular nurse who Mr Pickford was referring to, given the timing and that there was agreement he helped with the food tray. CN Stanford did not say she could not recall the son raising concerns, she said he did not do so. This is perplexing. The specific details of Mr Pickham's account are difficult to dismiss. Mr Pickham said the nurse appeared to be busy/stressed. Perhaps there were indeed other more concerning issues for the nurse at the time, unknown to Mr Pickham. Perhaps she did not realise the fact he was raising his serious concern because he was polite and she was confident Mrs Parsons was handed over as a stable patient with no stated concerns. Her GCS was only one point different to the ICU assessment when she assessed this.

122. It is accepted that Mr Pickham spoke with CN Stanford and attempted to communicate his concerns. All that can be concluded is that the nurse failed to appreciate this and did not share any concern for Mrs Parsons at that time. CN Stanford was unlikely to have been aware at this time that Mrs Parsons had suffered a post-surgical ischaemic infarct. It had not been handed over to her by the nurse who believed (until the date of inquest) that there had been nothing concerning in the CT.

123. By the time of inquest, CN Stanford could not recall whether she was aware of the CT.[36] The result of all these factors is that the ward nurses failed to recognise there was a need for Mrs Parsons to be reviewed by a doctor.

Observations in neurosurgical ward

124. Of general concern, was the issue of with what frequency observations should have been undertaken and recorded in the neurosurgical ward after Mrs Parsons was passed into their care. CN Stanford said in the hand-over she received from the ICU RN Hickman 'there was no specific care plan/treatment plan or instructions given.'[37] She was asked what would be the usual course for a patient discharged from the ICU relating to a plan of care. CN Stanford indicated second or fourth hourly observations, depending on whether doctors have ordered specifically about observations, and what observations they were doing in ICU. Her practice was to do two hourly observations until informed otherwise, until the patient was reviewed or until the morning round.

[35] Ex D3, P3, P4 para 5,

[36] T3, 1-33, 15-26

[37] Ex B15, para 14

125. She was asked what standard or standing order, regarding frequency of neurological observations was done for a patient being discharged from ICU at that time. She responded there was no standard arrangement at that time, it was up to the discretion of the registered nurse to decide what care and what observations she would do, taking into account any doctor's orders, or how the patient was and anything else. [38]She confirmed it was a judgement decision made by the nurse relating to the particular patient at that time. Arrangements have changed and now there is a documented process within the ward requiring two hourly observations until review by a doctor.

126. CN Stanford was asked about the nursing and medical discharge plans from ICU in 2012. She was asked if there was an order in relation to the frequency of observations for Mrs Parsons and her clinical context.[39] She said usually there was a plan recording anything that needed to be handed over to doctors as well as nurses, whether they had planned for a scan, and it is just so everyone is aware of what the plan is. This did not usually include observations, but sometimes it did.[40] In the absence of the typed ICU notes in the discharge summaries from the nurses or medical team in ICU or the nurse's verbal hand-over, she would generally just do second hourly observations until informed otherwise. It would be a judgement call if she decided to change the observation to four hourly. In the case of Mrs Parsons, she stated her judgement was two hourly but she did not necessarily think that four hourly would have been inappropriate.[41]

Extent of instructions, plan for patient from ICU staff regarding observations and subsequent plan of care

127. As noted earlier, the medical discharge summary from ICU was documented by Dr Sonawane at 10:20 authorised by the discharging Intensivist, Dr Cohen. The medical handover to the neurosurgical ward was accepted by Dr Bernardi. The ICU progress notes section in Dr Sonawane's record included:

    '-Pre-existing expressive dysphasia, concern regarding increased disorientation,
    -Repeat scan post Op–postop changes, new left occipital infarction, -Same neurology in the morning, no focal deficit,
    -Haemodynamically stable,
    -Spontaneously breathing.'

128. There was no direction in the medical or nursing discharge regarding frequency of the observations.

129. There was a subsequent recording by Dr Bernardi (who was agreeing to the transfer of Mrs Parsons to the neurosurgical ward) at 11:37 on 13 October in the ICU. It included a note that a MRI be performed in the next few days to clarify hypodensity on scan (?PCA stroke.)

[38] T1-37, 25-30
[39] Ex E5, pp161-164
[40] T1-45-146
[41] T1-46

Sequence of events in context of nursing instructions on neurosurgical ward regarding observations

130. The daily patient care record was kept in a folder at the end of the bed with the observations, medication chart and fluid chart. This assists nursing staff with continuity of care. CN Stanford completed that document after hand-over directing 'observations 2 hourly post-ICU'. This was consistent with her practice to commence with two hourly observations. She also stipulated oxygen saturations, neural observations and to report decrease in GCS, and stable vital signs or concerns. CN Stanford did not sign the daily patient care record.

131. The daily patient care record document for entering these observations did not reflect the complexity of staffing arrangements at the time. It recorded morning, afternoon and night shift. The nurses working that day were working an early eight hour shift and the other shifts were 12 hours.

132. However, the Observation Chart with Medical Emergency Call Criteria did record the times at which observations were recorded from 14:35 on 13 October which was when CN Stanford received hand-over from ICU.

133. Observations occurred on 13 October at 14:35, 15:00, 20:30 and 00:10(on 14 October).

134. No concerns regarding Mrs Parsons were raised by nurses during this period and no request was made for medical review.

135. The next observation Chart for 14 October appears to be wrongly dated 13 October and records observations at 00:00, 04:00, 08:00 and 12:00.

136. CN Stanford completed her shift at 19:00 on 13 October. She could not recall any time that Mrs Parsons was restless during her shift. She said had this occurred she might possibly have recorded this, depending on the circumstances and whether she thought it was significant.

137. The process of hand-over, the documentation in existence and the existing practice of nursing staff in the ward at the time, has established how it occurred that Mrs Parsons was received into the neurosurgical ward and documented by CN Stanford to be observed two hourly.

138. In this context, it also explains how other nurses understood that observations were in fact, four hourly.

139. The observations that in fact occurred after Mrs Parsons arrived on the ward were recorded as follows:

14:35
15:00
20:30
00:00

140. The interval reflects observations more closely aligned to four hourly intervals than two hourly. It appears once that pattern was set by 20:00, it was followed.

141. On 14 October observations were recorded at 00:10. RN Thompson took observations while RN O'Hagan was present.

142. Dr Bernardi continued as the on-call neurosurgery doctor with ongoing responsibility for Mrs Parsons during that night. She informed the inquest, she expected Mrs Parsons would be receiving two hourly observations until the following morning medical review or nursing staff contacted her. She was however, aware of the practice of senior nursing staff sometimes lengthening observations in patients some days post operatively. She did not expect this for a patient only recently discharged from ICU. She explained her assumption that the neurosurgical ward would undertake two hourly observations after discharge from ICU and this did not require her documentation of the requirement to do so.[42]

143. CN Stanford completed her shift at 19:00 and RN O'Hagan commenced her 12 hour shift as team leader. She was experienced and had worked in neurosurgery for seven years. She was working with RN Thompson. RN Zerhern worked during the afternoon until 23:00 when RN O'Hagan took over her case load. One nurse had beds 1-6, and the other, beds 7-11, which included Mrs Parsons. The nurses worked as a 'team' when there were only the two of them working after 23:00.

144. RN Thompson commenced at 19:00 on 13 October until 07:30 on 14 October. She received a hand-over from RN Stanford for some of the patients in beds 1-11, but not Mrs Parsons. Her evidence was that in 2012, observations occurred at four hourly intervals unless given a specific hand-over they were to be two hourly. (This is clearly a different understanding to that of Dr Bernardi and RN Stanford.)

145. RN Thompson was aware of the Daily Patient Care Record document at the end of the bed, which she would review for the frequency of observations. Signing the document indicated what occurred. She cannot recall signing the document but acknowledged it was her signature, and that the required two hourly observations had not occurred.

146. Possibly, she was influenced by the record showing that two hourly observations were not being conducted at the time she started her shift.

147. RN Thompson conducted the observations (with RN O'Hagan present) at 00:10. This was the first time Mrs Parsons' motor response was noted to have decreased and she was unable to obey commands.

148. When she started at 19:00, RN O'Hagan assumed Mrs Parsons was on four hourly observations because that is what had occurred according to the record.

[42] T2-95, 10

She was also of the view that the majority of patients discharged from ICU were on four hourly observations. She did not recall referring to the patient daily care record. She did not make a decision to downgrade Mrs Parsons to four hourly observations as she assumed this was what was occurring from the record.

149. RN O'Hagan recalled at 00:10 she was present when RN Thompson took observations. Mrs Parsons was drowsy but rousable, denied a headache, and responded to questions but with some expressive dysphasia. This was consistent with the previous hand-over and prior to that, what had been recorded in ICU. RN O'Hagan was not made aware of the temperature being low (marked at 34.8). She is not sure this is what is recorded in the record, particularly as the graph shows the temperature within normal range.

150. RN O'Hagan's normal practice was two hourly observations until midnight and then four hourly. She had authority to exercise her clinical judgment to do this.

Changes made in observations required.

151. CN Stanford continues to work in the neurosurgical ward. She confirmed there are now standard post-operative observations required and also post ICU observations as well. There is a sheet on the front of the notes at the end of each bed informing nursing staff what observations are required for the patient. She explained it is the doctor's decision whether a patient who has undergone surgery goes to the close observation bay which is a high acuity bay. Alternatively, the patient may come to the ward post-operatively. The ratio of nurses to patients depends on the particular circumstance of the patient. Post-operative observations are now hourly for four hours and then second hourly.[43]

152. There was some confusion regarding this as the Craniotomy for Tumour Post Discharge from ICU document states observations are second hourly until medical review. The RMO review is required within four hours, for neurological examination and documentation of condition, etc. The Neurology Observation Chart with Escalation Criteria chart has been reviewed and now caters for modifications to urgent clinical review criteria which can be completed by the reviewing doctor to modify observations which trigger escalation.

153. The revised Neurosurgery Ward 8AS schedule of observations document[44] confirms the requirements as:

    Post ICU observations; 2 hourly until review.

    Post-operative neurosurgical observations; half hourly for 2 hours, hourly for 4 hours and then second hourly until review.

154. There is also a standard guidelines and management of patients post craniotomy for tumour detailing the period following discharge from ICU. The document is on the ward for anyone to access.

[43] T1-40, 45

[44] Ex E4, p91

Arrest discovered at 04:25 on Sunday 14 October and period leading to death

155. Observations were taken shortly after midnight on 14 October. The next entry was at 05:20 after Mrs Parsons was discovered unconscious in her bed. The two nurses on duty had been attending to another patient in the same four bed bay, to administer medication. They heard a short snoring sound and observed Mrs Parsons' leg was protruding through the bed rail. They discovered Mrs Parson unconscious and frothing at the mouth. An emergency response was called and resuscitation measures were performed.

156. RN O'Hagan stated Mrs Parsons had been repositioned in her bed during the night after being restless and slipping down from the slightly elevated bed-head position.

157. The night medical registrar, Dr Curley documented attending when the arrest was called. She did not observe CPR occurring when she arrived. At 05:30 an entry in the record was made confirming Mrs Parsons was being 'bagged' by nursing staff but no cardiac compressions were being performed on arrival. This is contrary to the evidence from the nurses who both stated cardiac resuscitation was being performed and they could not recall any interruption. The factual contest cannot be resolved.

158. In any event, Dr Curley confirmed the return of spontaneous circulation after five minutes however, Mrs Parsons' pupils were fixed and dilated. The intensive care specialist Dr Widdicombe subsequently stated the five minute time was relatively quick, but still sufficient time for cerebral injury to occur. Down time was said to be uncertain and estimated by the nurses as 30 minutes prior to the emergency call being made. They had been in and out of the bay for other patients and possibly repositioning Mrs Parsons after midnight.

159. Both RN Thompson and R N O'Hagan stated that CPR was commenced and could not recall it being stopped other than to read instructions on the automatic defibrillator whether or not to apply a shock.

160. Mrs Parsons was transferred back to the ICU. The intensive care specialist, Dr Widdicombe considered there was no known cardiac risk to account for sudden cardiac arrest and an underlying cerebral cause was most likely. At 05:31, Mrs Parsons' sodium level was low, at 120. Mrs Parsons underwent a further CT scan at 06:00 on 14 October 2014. The radiologist's report stated:
'Development of cerebellar herniation increased cerebral oedema. Mild increased parenchymal defect and surgical bed blood.'[45]

161. Subsequently, Dr Papacostas recalls receiving a call on the Sunday 14 October at 07:15 when he was informed of Mrs Parson's significant deterioration. He was shocked. He thinks he was told Dr Tollesson had been informed. He called the consultant shortly afterwards.[46] Dr Tollesson had been called on Sunday morning

[45] Ex E5 p 51
[46] T1-76 15-30

by Dr Bernardi informing him Mrs Parsons had been found unconscious in her bed.

162. Dr Papacostas expected the consultant neurosurgeon, Dr Tollesson would come in to see the patient in these circumstances.

163. Dr Tollesson had not been informed of any deterioration over the weekend following surgery, or of the CT results or that a new infarct had developed. He said he was not notified the family requested to speak with him at any time. Dr Tollesson considered the findings of the CT on Saturday morning, 13 October of 'moderate midline shift and surrounding oedema and new occipital infarction' were significant and should have been advised to either the on-call neurosurgeon or himself. He said had he been advised he would have requested Mrs Parsons remain in ICU and ordered a repeat CT scan in 12 hours. He may also have implemented drug therapy.[47]

164. Dr Tollesson stated he asked Dr Papacostas if he wanted him to come in and talk with the family. He said Dr Papacostas indicated he did not think this was necessary as he had developed a good rapport with the family. Dr Tollesson indicated he was happy to come in if Dr Papacostas required his support in communicating with the family.

165. Dr Tollesson said he was not advised at any time the family wished to speak with him.

166. Dr Papacostas thinks it was possible that he offered to go in to speak with the family as he had established a good rapport with them prior to the operation. When he saw the family, he felt they were shattered and he felt extremely uncomfortable, and very bad. He spoke with the family afterwards briefly but he felt it was like a big wall had been erected and he couldn't do anything for them.[48]

167. It is regrettably noted that Dr Tollesson did not communicate with the family until months later when he attempted to make phone contact with Mr Pickham in the United States. Mr Pickham declined the contact after such a long interval.

168. The intensive care specialist, Dr Widdicombe met with family members at 11:19 on the Sunday morning. By this stage, it was considered Mrs Parsons had suffered brain death. Due to the recent cardiac arrest, Dr Widdicombe could not yet conclusively confirm the position. He also noted a low body temperature in intensive care which was consistent with a catastrophic cerebrovascular injury. It was proposed that further testing would be undertaken in 24 hours to accommodate family attendance and consideration of possible organ donation.

[47] Ex B7.1, p 3-4
[48] T1-76, 30-40

169. Subsequently, a nuclear scan was reported by the pathologist on 15 October 2012 which confirmed 'There is absent perfusion and uptake of radiotracer within the brain. Findings are consistent with brain death.'[49]

170. Dr Widdicombe reported Mrs Parsons' death to the coroner with the following summary:

171. 'The consensus opinion is that the likely sequence of events was that the patient had suffered a seizure on the ward, and subsequently suffered a cardiac arrest. The seizure may have been a consequence of hyponatraemia (low sodium) which can arise as a result of quite severe "cerebral salt wasting" which can be a complication of cerebral pathology. Of note, the patient's sodium was low (120 mmol/l) immediately following the cardiac arrest - but had been normal (137mmol/l) on her intensive care discharge. The predisposition to seizure would have been exacerbated by cranial tumour, as well as the craniotomy (surgery). The global cerebral oedema that progressed to brain death was likely to have been multifactorial but predominantly due to hypoxic encephalopathy following cardiac arrest, as well hyponatraemia, and postsurgical and tumour-related oedema.[50]

Autopsy

172. Mrs Parsons' family did not want an invasive autopsy to be undertaken. In these circumstances, and in the context of intensive care management prior to her death, the autopsy was restricted to an external examination together with review of the medical records and CT imaging and other tests. Autopsy examination was conducted on 18 October 2012 by the forensic pathologist, Dr Olumbe.

173. Dr Olumbe noted a cause of death certificate had been issued by the intensive care specialist, Dr Widdicombe as follows:

1(a)	global cerebral oedema (duration 2 days), due to or as a consequence of
1(b)	hypoxic cerebral ischaemia (duration 2 days) due to or as a consequence of
1(c)	cardiac arrest, (2 days), due to or as a consequence of
1(d)	hyponatraemic seizure (duration 3 days), due to or as a consequence of
1(e)	cerebral salt wasting syndrome postcraniotomy excision glioblastomas (duration 3 days)

174. Review of the medical record indicated the surgical procedure of image guided craniotomy and debulking of the tumour was uncomplicated. The tumour was consistent with glioblastomas and there were necrotic portions in the central part of the tumour with peripherally thrombosed vessels in the vascular tissue. The bulk of the tumour was successfully removed with minimal fluorescence in surrounding tissue at completion of the procedure. Histology confirmed a

[49] Ex E5, p55
[50] Ex E5, p9

glioblastoma multiforme WHO grade IV, noted by Dr Olumbe as the most aggressive malignant primary brain tumour.

175. The autopsy report then summarised Mrs Parsons' progression through the high dependency unit and intensive care unit and onto the neurosurgical ward.[51]

176. Dr Olumbe documented her cause of death as:

    1(a) glioblastoma multiforme–grade 4 (surgically treated).

177. He indicated further expert opinion was required to review clinical care.

Expert opinion, Dr Robert Campbell

178. Dr Robert Campbell, neurosurgeon provided expert opinion to this inquest. He reviewed Mrs Parsons' recent diagnosis and transfer from Rockhampton to RBWH.

179. He noted specifically that surgery was not undertaken until 16 days later on 12 October 2012.

180. Mrs Parsons underwent a stealth guided craniotomy and debulking procedure to remove a newly diagnosed 4 Glioblastoma Multiforme. This procedure used magnetic resonance imaging stereotactic guidance and tumour fluorescent assisted resection. The surgery was completed in less than three hours and there was no indication of adverse intraoperative event. Mrs Parsons was given more than three litres of fluids during the operation and remained in positive balance during her management in ICU over the next 24 hour period.

181. He reviewed her intensive care unit admission and step down to the ward at 2.35pm on Saturday 13 October 2012.

182. He noted at 4.30am on Sunday 14 October, nursing staff found Mrs Parsons in a cardiac arrest state. She was resuscitated and taken for CT scan. Cerebellar herniation and cerebral oedema was identified. She was intubated and re-admitted to ICU but did not respond to treatment. Clinical brain death was confirmed on Monday 15 October 2012.

183. Dr Campbell noted the opinion from the ICU that acute deterioration was attributed to a sudden and rapid drop in sodium levels.

184. Dr Campbell considered the first sign of neurological deterioration was observed six hours after surgery. There was a disturbance in speech and communication which was assessed by the neurological registrar on duty at 20:30. A clinical diagnosis of Gerstmann's Syndrome was made. Her condition fluctuated and a further CT was performed at 05:30 on the Saturday 13 October. A perioperative

[51] Annexure B

lobular infarct was identified confirming the neurological deterioration and Gerstmann's Syndrome.

185. By midday that day, she was transferred to the ward. Her GSC still reflected an impaired neurological state with impairment in language. Dr Campbell noted subsequent deterioration in GCS at 18:00.

186. At about 04:30, Mrs Parsons was found unresponsive in cardiac arrest following a suspected unwitnessed seizure. He confirmed tests showed hyponatraemia (serum level of 120) which was corrected but the patient did not recover.

187. Dr Campbell made three initial observations regarding treatment. The first issue was delay in surgery. He considered the transfer to the major tertiary neurosurgical centre was appropriate. However, he found a delay of 16 days before surgery was undertaken, as both disappointing and unexplained. In his opinion, Mrs Parsons should have been allocated to a colleague and treatment undertaken in a timely fashion. He could understand a delay of up to seven days but could not see a situation where surgery should be delayed beyond 10 days, 'let alone 16 days as occurred.'[52] He went on to say 'within a tertiary neurosurgical service with numerous full-time staff specialists, I am bewildered to understand what other cases took precedence over this case.'

188. Dr Campbell questioned the lack of emergency theatre scheduling as he could not think of a more urgent matter than this patient.

189. The second comment related to consideration of the particular surgical technique of fluorescent guided surgery which he stated carries a greater risk of causing an intraoperative neurological injury. He considered the possibility of over aggressive attempted excision of the tumour in the posterior parietal region, contributing to an increased risk of intraoperative complication which eventually manifested itself as a Gerstmann's Syndrome. Dr Campbell reviewed the post-operative scan which he interpreted as revealing a fairly wide cortical excision from a transverse approach. He commented that a more vertically paramedian trajectory may have avoided the eloquent cortex.

190. It is noted here, that another of the neurosurgeons from the RBWH, Dr Lindy Jeffree, stated there was no evidence to suggest the use of ALA fluorescence was likely to result in an over aggressive attempt at excision. It was asserted, the use of ALA fluorescence was associated with improved survival. However, Dr Campbell's reference to the detailed training manual distributed by Specialised Therapeutics Australia does provide limitations to the extent of resection. The limiting factor is the risk to eloquent brain structure. Essentially the surgery for malignant glioma remains palliative.

191. The references from the training manual and a further article identified in Dr Campbell's advice dated 1 August 2016 is persuasive simply as an indication of the context in which the procedure is applied, and remains palliative rather than

[52] ExC2 p 3

curative. The emphasis rests with the surgeon in appropriately selecting patients to undergo this particular surgical technique. In Dr Campbell's summary he states 'it would appear that the complication rate of new neurological deficit, similar to what was experienced by Mrs Parsons, was approximate doubling in the group in which ALA is used to guide resection.'[53]

192. It is also noted here that the court accepts Dr Robert Campbell as an appropriate consultant neurosurgeon with relevant expertise to comment on the 5A LA fluorescent guided procedure, having regard to his professional neurosurgical history and taking the same training course in Gliolan as both Drs Tollesson and Jeffree.[54] It is noted, Dr Campbell continues to use the procedure in highly selective cases.

193. The third observation made by Dr Campbell was that an excessive amount of intravenous fluid was required during the operation, in excess of blood loss. He did not consider this factor was causative of the subsequent development of hyponatraemia, but he considered it a contributing factor due to dilution of the proteins and albumin. He considered it a factor in the subsequent sequelae rather than 'cerebral salt wasting' as an idiosyncratic development. He could not see any consideration of urinary sodium, osmolality or other diagnostic criteria to reach the conclusion of the diagnosis of cerebral salt wasting.

194. Dr Campbell suggested additional expert comment from an independent neuro anaesthetist and neuro intensivist.

195. The fourth comment from Dr Campbell referred to the reliance on GSC as remaining near normal in the postsurgical period until about 6pm in the intensive care unit. At that point, disorientation and repetitive language suggested a more specific focal neurological event had occurred.

196. The fifth comment by Dr Campbell questioned the appropriateness of the decision to transfer Mrs Parsons from intensive care to a neurosurgical ward when a CT scan at 05:00 that morning confirmed an operative complication and a new neurological deficit. He indicated in evidence this was sufficient reason for the surgeon to request extended time in ICU. If this was not possible, then an appropriate plan of management should have focused on higher frequency of observations. It might also consider selecting a bed close to the nursing station and directing senior nursing staff to Mrs Parsons in the next 12 hour shifts.

197. He also confirmed the CT scan and ischaemic event and changes in communication should have been handed over to ward staff to alert them that this patient's course was not straightforward.[55] With respect to frequency of observations, he considered this was an individual assessment of a patient rather than trying to dictate a set, chronological sequence. It should have regard to the frequency of observations of the time of exit from intensive care. It is his usual

[53] Ex C2.1, p3-4
[54] Ex C2.1, p 4-5
[55] T3, 1-87

practice for patients to continue with hourly or second hourly observations after exit from intensive care to enable nurses to become familiar with the patient.[56]

198. In Mrs Parsons' particular circumstance, he considered on transfer to the ward, there should be a transition period of hourly observations as a minimum for the first four hours and then review the situation. On Saturday lunchtime through until Sunday morning, he would expect second hourly observations as a minimum. He considered the responsibility for setting that plan of observation and care, rested with the neurosurgical team handing over from ICU to the ward.[57] Ultimately, it would be the surgeon's responsibility to document a plan that was a variation from normal practice and also conduct a discussion with the senior nurse of the ward receiving the patient.

199. Dr Campbell expressed some concern about the responsibility of decision making falling to the most junior person in the system (principal house officer neurosurgery, working a 24 hour shift) to make the determination. He was however, reassured that there was consultation, accessibility and advice provided by the senior registrar, Dr Papacostas. He had assisted at the surgery and subsequently reviewed Mrs Parsons and then had been on-call overnight. Dr Campbell commended him for encouraging the principal house officer to contact him to discuss the CT results well after the completion of his on-call period. Dr Campbell nonetheless considered it would have been appropriate to involve the Saturday neurosurgical consultant at this critical point. He indicated, had this been his patient, he would want to be informed. Subsequently, Dr Tollesson, (who was not informed of these events) also indicated he should have been contacted.

200. Dr Campbell did not consider it was acceptable practice that observation frequency was at nurse discretion.

201. Dr Campbell noted the consultant surgeon was not contacted despite clinical assessment on the evening of surgery indicating some evidence of complication which was subsequently confirmed by the CT, indicating a cerebrovascular infarct.

202. Finally, Dr Campbell expected in a tertiary neurosurgical unit at that time where the consultant in charge was not on duty the following Saturday morning after surgery, that the consultant would be notified by his staff or directly from the intensive care staff, of the developments with the patient. Further, the neurosurgeon on duty over the weekend should have also been notified directly.

203. Dr Campbell held the opinion that Mrs Parsons was not in a suitable condition at the time she was discharged from the intensive care unit to the neurosurgical ward.

[56] T3, 1-88

[57] T3, 1-88 ,25

204. In the circumstances of a new neurological deficit following surgery, he considered a heightened level of observation and consideration of all specific modalities of neurological dysfunction was required.

205. Dr Campbell was asked to comment with respect to the appropriateness of treatment once the ischaemic stroke/neurological deficit in the post-operative scan was identified.

206. He remained concerned about the fluid management. A high volume of saline, and subsequently Hartman's solution was used yet the patient remained in positive fluid balance despite being given Mannitol as a diuretic. Dr Campbell considered the serum electrolytes seemed to indicate a haemo-dilution occurred yet the sodium remained stable until the time of the presumed seizure and subsequent cardiac arrest. He said in Mrs Parsons' case, she appears to have developed hyponatraemia in the face of a large fluid load of saline. He considered the disturbance of her physiology in which she has retained water and excreted sodium (no urinary sodium results available) needs consideration.

207. He did not consider further imaging was required at that point. However, intervention and assessment by a senior neurosurgeon/neurosurgical staff member or consultant neurologist was appropriate and did not occur. Although he did not consider this would have changed the outcome for Mrs Parsons, it would have provided an opportunity to remain in intensive care with further regular serum electrolyte assessment. Consideration of her overall fluid management would have taken place.

208. Dr Campbell stated there were no specific guidelines for observations in the post-operative setting of a complication such as stroke following neurosurgery. The observations should relate to the needs of each individual patient. He believed it likely that all staff were lulled into a false sense of security by simply applying the GSC assessment tool without further consideration of her communication impairment. The identification of Gerstmann's Syndrome should have triggered this so that Mrs Parsons received a higher level of neurological observations irrespective of whether this was in the intensive care unit or in the stepdown neurosurgical ward.

209. In his evidence, Dr Campbell was asked about the evening of 13 October/early morning 14 October on the ward. The GCS score was assessed and for the first time, there was a decrease in the motor strength response. He said this should have raised concern and triggered the nurses to request a medical review from the on call junior doctor to attend. This would have led to the registrar being called if there was concern and further tests and assessment would be initiated. (Blood tests, x-rays, increased observations, and possibly further brain imaging.)

Overall comments from Dr Campbell

210. Dr Campbell confirmed Mrs Parsons' underlying medical condition was of an invariably incurable disease. The location of her tumour within her dominant parietal lobe would almost certainly lead to the inevitable development of

significant neurological damage irrespective of adjuvant treatment such as chemotherapy, radiotherapy or subsequent surgery.

211. Dr Campbell strongly believed that Mrs Parsons' care should have been different but he was not sure that it would have had any impact on the fatal nature of this disease.

212. He categorised his criticisms as systemic problems (rather than individual staff) within the major department. He did however, note that issues raised by Mrs Parsons' family with respect to the standard of care and expectations of contractual attendance of any particular specialist, should be reviewed in the context of Queensland Health and not the standard of care and level of hospital management and expectations in North America.

213. In particular, Dr Campbell stated he did not consider personal criticism of the consultant was warranted, rather he considered systems errors had occurred in the management of Mrs Parsons, ultimately resulting in her demise.

214. Dr Campbell confirmed the preoperative MRI on 28 September 2012 showed extensive cerebral oedema over the entire left hemisphere with distortion of the cortical architecture and oedema/active tumour disease extending across the midline. In his opinion, it was an extensive tumour which was not curable by complete surgical resection.

215. Post-operative CT imaging on 13 October 2012 showed a large resection cavity of the posterior left parietal region extending inferiorly to the level of the tentorial notch. Adjacent to the resection cavity was an area of cerebral infarction. When combined with the extent of resection, the result was a larger mass lesion than the original tumour.

216. Dr Campbell considered this was not an expected outcome of surgery. He noted the cerebral infarction fits within the territory of the posterior cerebral artery medial branch territory likely due to interruption of arterial supply at the level of the penetrating branches of the posterior cerebral artery deep within the resection cavity. It is a significant infarction both in location and in terms of functional neurological loss when combined with the original extent of the underlying tumour.[58] (It is noted this is contrary to the opinion expressed by Dr Lindy Jeffree that this was a relatively small infarct. Dr Campbell's detailed explanation is persuasive.)

Dr Robert Barnett

217. Dr Robert Barnett assisted this inquest by providing written expert advice from his perspective as an anaesthetist and intensive care specialist.[59]

218. He dismissed the possible causative effect of steroid medication prior to surgery in the subsequent development of hyponatraemia as unlikely. Corticosteroids

[58] Ex C2.1, p3
[59] Ex C1

cause sodium and water retention. Occasionally, this causes chronic low sodium levels but is usually slow and related to oral intake of sodium poor fluids. In Mrs Parsons' case, the drop in sodium levels was precipitous and at the time of minimal if any oral intake.

219. Low sodium level occurs when:
    (a) retention of water greater than sodium, most commonly as syndrome of inappropriate antidiuretic hormone (SIADH).
    (b) loss of sodium greater than water–cerebral salt wasting.
    (c) the absorption, either intravenously or orally, of hyponatraemic fluids.

220. Dr Barnett dismissed SIADH as there was no high volume of water retention. He also noted fluids were closely monitored and high sodium fluid was always used.

221. Dr Barnett considered 'cerebral salt wasting is well documented in this scenario, normally the onset of the low sodium is slower than in this case but it has been reported to occur rapidly especially in women. Cerebral salt wasting causes the loss of sodium and water causing a form of dehydration. At the time of resuscitation there were several markers of dehydration, most notably her haemoglobin had jumped up and fell to its normal level when resuscitated'.[60]

222. He also considered that the volume of intraoperative fluid was within the normal range in a patient receiving mannitol. There was no indication of a high urine output in the intraoperative or early post-operative period which might suggest excretion of sodium in the urine.

223. Dr Barnett reviewed the pathology results and explained in the interval after discharge from intensive care, there was a marked increase in the haemoglobin suggesting dehydration. At the same time, the sodium fell to 120. The combination of a profound fall in sodium at the same time as dehydration occurring is most likely to be idiopathic cerebral salt wasting in his expert opinion.

224. Dr Barnett considered early identification and management of electrolyte imbalance, especially sodium is a vital part of post-operative care for neurosurgical patients. In the particular clinical circumstances, he considered the electrolyte testing frequency was adequate. He considered it was impractical to require four hourly testing. In most patients this would lead to more problems than identification of issues. He considered there was little to suggest it was necessary in this case.

225. Finally, Dr Barnett commented that the decision to discharge from intensive care is always a balancing game comparing relative risks of preventing adverse events across multiple patients. He agreed it could easily be argued that Mrs Parsons should have stayed in intensive care for a further 24 hours and it might have made a difference. However, the reality of pressure on intensive care unit beds would mean such a decision applied across all patients with potential to

[60] Ex C1, p 2

deteriorate would cause further delay in access to surgery. He considered the overall evidence generally indicated longer stays in intensive care may identify the deteriorating patient earlier but not necessarily alter the outcome. He considered it was impossible to guess whether a further day in the intensive care unit would have helped Mrs Parsons.

226. In considering Dr Barnett's comments, Dr Campbell maintained his view that the volume of fluid was excessive. Most neurosurgeons and neuro anaesthetists would attempt to keep the patient 'a bit dry' other than in the situation of excessive blood loss requiring a large volume fluid replacement. He also noted a drop in haemoglobin from 9 October to 13 October which he thought likely to cause fluid dilution. The estimated 27% decrease in haemoglobin remained unexplained by blood loss. Nor was this explained by the dehydrating effects of mannitol and subsequent diuresis

Dr Felicity Sinclair

227. Dr Felicity Sinclair did not attend but assisted the inquest with her expertise as a general and specialist anaesthetist.

228. Dr Sinclair considered the steroid medication, dexamethasone does not cause a decrease in serum sodium. The sodium levels remained normal until 14 October 2012.

229. The intravenous fluid used during surgery was normal saline and has a sodium concentration slightly higher than normal intravascular sodium concentration. This would not have been responsible for causing hyponatraemia. Nor did she consider three litres an excessive volume where intraoperative mannitol, which is a diuretic causing fluid loss from the kidneys, was also being used. (Dr Campbell maintained his reservation with the volume of intravenous fluid during surgery which he considered to be excessive.)

230. Dr Sinclair noted intraoperative blood loss was not recorded and therefore considered it was not accounted for in the post-operative fluid balance, which would have been less positive then recorded. It was not considered that the positive balance was excessive. There were no signs of hypervolaemia such as oedema or neck vein distension. The sodium level remained normal until the pre-terminal event on 14 October 2012.

231. Dr Sinclair considered the most likely cause of Mrs Parsons hyponatraemia was either cerebral salt wasting syndrome or syndrome of inappropriate antidiuretic hormone (ADH) secretions. These syndromes occur in patients with neurologic disease and may cause precipitous and profound hyponatraemia. (It is noted Dr Campbell agreed with these two possibilities. He stated it could not be established which of these diagnoses best described the metabolic scenario. There was no information that urine and sodium tests results were collected to confirm the diagnosis of salt wasting. Both these conditions result in rapid decrease in serum leading to brain swelling. This is commonly seen in patients with a range of brain pathology.

232. Dr Sinclair stated had the hyponatraemia been diagnosed earlier, urinary sodium and osmolality could be undertaken. This would differentiate between cerebral salt wasting syndrome and syndrome of inappropriate ADH secretion. However, Mrs Parsons' pre-terminal event meant further testing would not have changed the eventual outcome. It was noted the serum sodium was normalised two hours after her cardiac arrest.

233. Dr Sinclair thought it possible early identification of hyponatraemia may have altered the outcome but deferred to the opinion of a neuro intensivist.

Conclusions from expert evidence

234. The underlying cause of the low sodium was not able to be established after consideration of all the information form the experts.

235. In evidence at the inquest, Dr Campbell stated after review of post-operative imagining, he thought it likely an infarction of the deep medial parietal temporal location had occurred and this was the cause of the communication failure which has been labelled Gerstmann's syndrome.

236. Dr Campbell noted that without access to a fall language assessment preoperatively, it was difficult to assess the patient's varying capacity to express themselves. It was evident in the post-operative period in ICU there was concern that the patient had a communication problem requiring further assessment.

237. With respect to the use of the GCS, Dr Campbell confirmed it was used universally around the world as a tool to assess neurological function. It was developed in the context of head injuries sustained in possibly remote locations to assess with some consistency the patient's condition.

238. It is used in other situations to give a very simple reproducible global assessment of the patient's level of consciousness. He considered in the context of this patient, in this situation, its use was flawed where there was a language problem preoperatively which had subsequently become more complex post-operatively.

239. Dr Campbell would have expected a speech therapist skilled in language and communication to assess and document the deficiencies. Alternatively, a neurologist more skilled in interpretation of clinical response and correlation with anatomical disease, could have documented Mrs Parsons' preoperative communication/speech status to provide a baseline.

240. Dr Campbell did not consider it was reasonable that there had only been one neurological assessment as part of the admission process undertaken by a resident doctor. With Mrs Parsons' background of transfer from Rockhampton with stated language disturbance, he considered a tertiary hospital would instigate a speech therapist to assess the language deficits.

241. Dr Campbell also expressed the view that in the public hospital setting where patient care is being undertaken through a hierarchy of medical offices, he would have expected documentation or entry of the subsequent consultants'

neurological assessment of the patient. This was with reference to the attendance by Drs Tollesson and Papacostas on either the 9, 10 or 11 October 2012. It was noted the practice could involve the more junior doctor making and entry.

242. He considered this situation a system failure with only one record of neurological assessment upon admission made by a junior medical officer.

243. Despite these criticisms Dr Campbell did not consider the outcome for Mrs Parsons would have altered the invariably fatal nature of her underlying condition.

Review and response from Royal Brisbane & Women's Hospital

244. A Root Cause Analysis review was undertaken following the death of Mrs Ann Parsons. The review was of the medical records and identified eight staff directly involved in patient care. The RCA team considered the family's concerns via information provided by the family to the coroner. The RCA review obtained an expert opinion and reviewed legislation, policies, procedures, standards, publications and published evidence.

245. Only the final report is available to the coroner.

246. The description of the actual event reviewed was as follows:
Mrs Parsons was a 59-year-old woman who underwent a Stealth guided craniotomy and debulking procedure to remove a newly diagnosed grade 4 Glioblastoma Multiforme on Friday, 12 October 2012. She was admitted to the adult ICU post-operative then stepped down to the ward at 14:35 on Saturday, 13 October 2012. At 04:30 on Sunday, 14 October 2012 nursing staff found Mrs Parsons in a cardiac arrest state. She was resuscitated and taken for a CT brain scan where cerebellar herniation and oedema was identified. She was readmitted to the adult ICU but did not respond to therapy. Clinical brain death was confirmed on Monday, 15 October 2012. The acute deterioration has been attributed to a sudden and rapid drop in sodium levels.

247. The review focused on:
Identification of neuro pathology
Risk assessment and treatment planning at the RBWH
Post-operative management, including locations of care and stepdown processes
Patient management post step down, including vital sign recording, visual observations and sodium levels
Management of neurological emergencies

248. The review acknowledged the majority of contacts while Mrs Parsons waited for surgery were with intern and registrar level staff. There was minimal consultant engagement until Tuesday, 9 October 2012.

249. The hospital acknowledged there were delays in formalising plans of care due to neuro surgical staff deferring clinical decision-making until the consultant was available. The availability of theatre slots for the surgeons and the impact of ICU bed availability further complicated theatre coordination. Interviews with staff and review of the records has identified that Ms Parsons was categorised as a semi urgent elective procedure: According to the hospital RCA, the delay did not impact on Mrs Parsons' treatment, prognosis or outcome.

250. The issues identified by the RCA team were as follows:

(i) An absence of case conference with the neurosurgical consultant. Essentially it was acknowledged that the post-operative complication of an infarct should have been escalated to the treating neurosurgical consultant, or in that person's absence, to the on-call neurosurgery consultant.

(ii) The GCS score attributed to Mrs Parsons condition during her 24 hour stay in ICU had declined from 14-12 and there were pupil changes. This led to a CT brain scan. Records showed after that scan the GCS was consistently recorded as 12/15 from observation charts. However, the review from the ICU registrar at 10:00 assessed GCS as 14/15 noting expressive dysphasia, echolalia and tube ability to obey commands. The junior registrar review at 11:37 did not record a GCS but documented the patient was confused, moving all limbs to command with significant prompting and able to follow one stage commands. The review considered there was no clear understanding/documentation of the patient's level of consciousness following the CT post-operative scan.

(iii) The decision to step the patient down from intensive care to the ward was made by the ICU registrar in conjunction with the ICU consultant and the neurosurgical team. The neurosurgical team was represented by a junior neurosurgical registrar who had discussed the patient with the off duty senior neurosurgical registrar. It was more appropriate that supervision at consultant neurosurgeon level should have been sought to provide oversight of the treatment plan.

(iv) Minimal emphasis was attributed to the post-surgery infarct and neurological oscillation.

(v) Recordkeeping was not comprehensive or sufficient to reflect staff decisions regarding Mrs Parsons' condition prior to transfer.

(vi) There was no post ICU care review plan.

(vii) Assessment of GCS varied and might reflect the variability of the patient's condition, but also the variability of the staff member performing the assessment and this reinforced the need for specialist neurosurgical staff to be involved.

(viii) At stepdown to the ward it was noted there was no formal requirement for the patient to be reviewed by medical staff although the practice was usually to do so. On the weekends and after hours, there is reduced neurosurgery staff availability. Neurosurgical registrar cover existed for all inpatients at the RBWH and Royal Children's Hospitals as well as new cases admitted via the emergency department. Training on-call neurosurgical consultants are available via telephone. Non urgent review is available via surgical ward call or on-call neurosurgical registrar.

(Is noted in the RCA that the results of the CT brain scan were confirmed. At inquest this was found not to be the case. The nurse handing over, wrongly believed the CT post-surgery had not raised any issues and handed over accordingly. No particular plan of care was identifiable from the nurse's handover. There was a brief note from the neurosurgical registrar under 'P' for plan indicating an MR in the following days.)

***Documentation in the observation chart with medical emergency call criteria was not amended. Again, the information conveyed from ICU that the patient was stable at the time of transfer was misleading. It did not identify the variability and commencing decline in her presentation. Dr Campbell referred to this and concluded the staff were lulled into a misunderstanding of Mrs Parsons true condition*.)**

(ix) The RCA review noted there was a neurosurgical intern present on the ward but going off duty when Mrs Parsons was admitted. The person was not requested to review Mrs Parsons as no concern was identified with only a drop of one point in GCS.The review considered Mrs Parsons had indeed experienced a true drop in GCS between about 10:00 when assessed by the ICU registrar and the nursing assessment on admission to the ward at 14:35. No subsequent nursing concerns were documented. There was reference to repositioning multiple times due to restlessness.

(x) The RCA review noted the nursing care plan written at the time of admission to the ward directed two hourly observations. Two sets were recorded but then proceeded at four hourly intervals. It was noted that nurses were incidentally sighting Mrs Parsons due to attendances on another patient and no concerns were identified.

(It is noted such incidental sightings do not satisfy formal observations.)

(xi) The review stated staff are to use clinical discretion and ensure sufficient visual observations to ensure the safety and well-being of patients. There was a locally agreed to schedule that detailed the frequency for documenting observations to accommodate specific circumstances for example postop neurosurgery.

(*Evidence at the inquest did not reveal any consensus on the frequency of the observations to be undertaken in the neurosurgical ward after Mrs Parsons was admitted. The neurosurgical junior registrar who authorised the transfer assumed two hourly observations would apply. The nurse who received*

handover assumed initial two hourly observations overnight until reviewed by the ward round or other medical review. That nurse also acknowledged the varying discretion of senior nurses to lengthen the frequency of observations in accordance with the patient's individual condition. Other nurses in the same ward on the same shift believed four hourly observations were the norm. The documented patient care plan prepared by the nurse who received Mrs Parsons onto the ward stated two hourly observations. It was ignored after 15:00 when the next observation was recorded at 20:00.)

(xii) The RCA review then considered the issue of hyponatraemia including fluid balance status, serum sodium levels and behaviour on the ward. There were no issues identified with respect to fluid balance. The last recorded sodium level of 135mmol/L was five hours prior to transfer to the ward. It was at the lower end of normal. On the ward there was daily monitoring of serum biochemistry unless the clinical condition warranted increased monitoring. Restlessness was documented and the need to reposition, but this was not seen as a flag raising concern.

The Review did not consider there was inadequate observation and no observed clinical signs or symptoms of hyponatraemia.

(xiii) The review looked at the response after Mrs Parsons was found unconscious in cardiac arrest. No issues of concern were identified.

251. An external review of Mrs Parson's care was referred to by the RCA, and was said to be a surgical audit by the Royal Australasian College of Surgeons. It was not available to the inquest but was said to reach consensus of reasonable care. The rapid drop in sodium was extremely rare, but a known complication of brain tumour surgery.

252. No foreseeable acute physiological changes that could indicate falling sodium levels were identified.

253. The RCA acknowledged there was delay until the consultant was available. This occurred in the context of limited availability to theatre slots and access to ICU beds. The RCA concluded the delay did not impact on Mrs Parsons' treatment.

254. Subsequent to the RCA further information was provided from RBWH that only two surgeons were rostered on from 1-5 October 2012. The Neurological Society of Austrasia conference was held from 4-6 October 2012.

255. Information from the hospital also confirmed there was no Emergency Elective booking for surgery made for Mrs Parsons on 5 October. The only booking was for 12 October 2012.

(The RCA did not identify that a neurological assessment was performed by a junior level doctor on admission and no further documented assessment was made prior to surgery, 15 days later. A deficit in speech was apparent on admission but no formal assessment was directed or undertaken. The information from family that her speech had worsened in the waiting period and

her gait altered was not followed up or escalated. Once registrar level and subsequently, consultant level involvement commenced in week of 8 October, there was no documented review or assessment to update the initial admission day neurological review. Nor was a baseline of Mrs Parsons' speech considered or arranged. The lack of this baseline assessment became critically important in the post-surgical period in ICU when varying GCS scores were considered likely to reflect different assessors and variability in her condition rather than the beginning of a deterioration.)

256. The RCA acknowledged supervision at consultant neurosurgeon level may have provided additional opportunities to discuss Mrs Parsons' case and provide oversight on the treatment plan when discharged from ICU was under consideration.

257. It was also acknowledged that minimal emphasis was placed on the post-surgery infarct and neurological oscillation.

258. Recordkeeping was criticised as insufficient to establish the basis for actions taken by staff and notes were too brief.

259. The variability in GCS scores raised the issue that senior neurosurgical input may have identified a deteriorating patient.

(The RCA did not consider that GCS in the absence of a baseline of speech function was an incomplete way of assessing Mrs Parsons' neurological condition.)

260. The RCA review identified three lessons learnt.

i. The first related to recordkeeping which did not reflect the action taken by staff to clinically assess the patient or outline decision making processes. Memos were sent to neurosurgical and Department of Intensive Care Medicine, medical teams to be followed up.

   All patients stepped down from recovery or ICU must have documented in the clinical record:

   (a) An overview of the clinical assessment including result of hand over discussions with on call or treating consultants where suitability for stepdown is decided
   (b) The GCS is assessed
   (c) Thresholds for escalation to the treating teams

   Audits will monitor compliance and review within 3 months

ii. The second issue was vital sign recording did not accommodate patients stepped down from higher levels of care. This could lead to reduced frequency of observations due to emphasis on hours since surgery rather than care transitions.

Standardised processes for stepped down patients were developed commencing with a minimum 2 hourly requirement until neurosurgical review. Compliance was to be audited.

iii. The third issue was the absence of structured care pathways for neurosurgical intervention patient care. This required detailed development over the following 12 months for patients with intracranial tumours and aneurysms.

Progress following hospital review

261. Subsequently in May 2014, an update on these improvements was provided to the coroner by Dr Graves, the Executive Director of Medical Services at RBWH.

262. There was additional information provided by the hospital in August 2015. This included the requirement since 2012 for consultants to identify who will be caring for their patients while on leave.

263. A weekly ward round of the whole ward is attended by the Director of Neurosurgery which is an opportunity to identify any patients who may require additional consultant input.

264. Since 2013, the on call neurosurgical consultant attends the hospital on a Saturday to review post-operative patients and any other patients of concern.

265. Since 2014, post craniotomy patients return to the ward but in a designated bay staffed at a minimum of one nurse to four patients. The admitting doctor determines the appropriate level of observations.

266. Current guidelines for post-operative care after craniotomy set two hourly observations for the first night, then four hourly observations, then four times a day form the day post operation.

267. Patients now transferring from ICU undergo full neurological assessment by a medical officer within four hours of arrival on the ward.

268. The charts have been revised to include escalation criteria providing direction by medical officers to nursing staff. This addresses the issue of a clear direction from medical staff to nursing staff indicating the required frequency of observations and the criteria to trigger contact with medical staff seeking further review.

Findings section 45 of the *Coroners Act 2003*

a. The identity of the deceased person is Mrs Ann Louise Parsons

b. The deceased person suffered a brain herniation following a craniotomy to excise a Glioblastoma. The cause of the brain herniation was multifactorial and included global cerebral oedema resulting from an ischaemic event, low sodium, and cerebral hypoxia following cardiac arrest.

c. The date of death was15 October 2012.

d. The cause of death was due to unexpected post-operative complications following the excision of a Glioblastoma multiforme-grade IV.

Recommendations

I recommend that the Royal Brisbane and Women's Hospital implement the following:

a. Conduct in-service training on the importance of documentation and reinforce the policy requirements regarding documentation for all medical staff on the neurosurgical ward, including consultants;

b. Regular follow-up audit of medical entries to ensure that policy *74100/Proc:Documentation in the Patient Record* is being complied with;

c. The clinical/case pathway for a craniotomy patient with a brain tumour be amended. When a neurosurgical patient presents with preoperative communication deficits, a comprehensive review by either a speech pathologist or member of the neurology team is undertaken to ensure there is a timely baseline assessment undertaken;

d. The clinical/case pathway for a craniotomy patient with a brain tumour be amended to require the operating surgeon(s) complete a preoperative comprehensive detailed high cognitive function neurological assessment. The assessment must be clearly documented on the record;

e. That the clinical/case pathway for a craniotomy patient with a brain tumour be amended to consider a preoperative CT/MRI scan within 3-5 days prior to surgery. The surgeon be required to document the reason if a decision is made not to arrange such preoperative imaging.[61]

f. That Mrs Parsons case be presented to the junior medical and nursing neurological training to highlight the importance of identifying changes in speech, restlessness and a change in the patient's ability to follow commands;

[61] This recommendation has regard to the expert opinion of Dr Campbell, which is accepted as well as the hospital's stated 'logistic constraints'. If the surgeon considers it is unnecessary to have reference to recent imaging, the reason for such decision is to be recorded.

g. An audit be undertaken to check whether consultant to consultant discharge of neurological patients is occurring in the intensive care unit in accordance with the root cause analysis recommendations.[62]

In conclusion, it is hoped that the investigation and inquest into the death of Mrs Ann Parsons has provided information and explanation to her family regarding the events that occurred during her admission and treatment at the Royal Brisbane and Women's Hospital.

Since Mrs Parsons' death, significant change has occurred. The recommendations from the inquest seek to further improve the standards of patient care, particularly for post craniotomy patients.

Coroner Clements
Coroners Court of Queensland
6 October 2017

[62] Intensive Care Doctor Cohen indicated it was still a junior doctor making these decisions.

Annexure A

What does the pre-operative medical record show?
Summary of evidence relating to this period from Dr Tollesson, Dr Papacostas and Mr David Pickham

There was a constant record made by nurses that family members visited throughout Mrs Parsons' admission and there were frequent periods of accompanied day leave.

The assessment in admission by the resident house officer Dr Cunneen ended with a list of investigations required. The entry immediately following at 19:30 was made by an enrolled nurse and is one of the very few that acknowledges how Mrs Parsons was feeling. It records: 'Patient aware of frontal lobe tumour. Patient quite anxious about upcoming events.'

Subsequent reviews by doctors were not documented in any detail. Dr Papacostas explained that ward rounds were usually held daily and the registrar in attendance would clinically review the patient and report back to the consultant as required. Dr Papacostas stated the resident was responsible for recording the date and time of the entry, listing the medical practitioners present,[63] documenting findings or discussions, and arranging any required tests. Most of the ward round notations were confined to a sticker but very few identified which registrars were reviewing the patient.

On Friday, 28 September, the 8AS Neurosurgery Ward Round sticker merely recorded the fact that MRI and CT were scheduled that day and doctor to review. The record was signed, perhaps by a Dr Davis [64] but did not record which medical personnel were present.

On Saturday, 29 September, the ward round note was made by the same doctor. No other medical personnel were identified. The following was recorded:
'Keen for family to discuss with doctor.' Nil changes were noted and the final note was, 'Need to arrange surgery.'

On Sunday, 30 September, the same ward round doctor noted:
'Have explained still a high risk of being an aggressive tumour, still need surgery. Plan for surgery next week.'
No other medical personnel were recorded.

On Monday, 1 October, the ward round note was made by a different doctor[65] with an indecipherable name. No other medical personnel were recorded. The note read::
'Awaiting operating theatre time and date this week. Needs consent.'
A post op plan was noted as: 'One week then home if all good.'

On Tuesday, 2 October, the ward round note was made by the first Doctor [66] who recorded:
'Need to discuss with Dr Tollesson. Nil new changes.'

[63] T1-62, 30-39
[64] Doctor 1
[65] Doctor 2
[66] Doctor 1

The plan was recorded as: ‘Await plan from Dr Tollesson.’
No other medical personnel were recorded.

By Wednesday, 3 October, the ward round note read: ‘nil new concerns’, but the plan had changed to:
‘Await operating theatre (likely next week)
Meet with family
Dexmethazone decreased to 4 mg.’

The note was made by a third doctor, possibly Dr Wong.[67] No other medical personnel were recorded.

(It is observed that Mrs Parson’s son David Pickham arrived from the United States of America on 2 October and he visited her daily including attending the majority of ward rounds in the mornings.)

The nursing note following on 3 October records an unnamed rostered medical officer saw the patient’s son (Mr Pickham) about the patient’s progress and plan for operation. It was then recorded Mrs Parsons was off ward with family and friends.

On Thursday, 4 October, the ward round documented there were nil concerns and observations were stable.

The two word plan is indecipherable in its meaning, although the second word reads ‘current’. No other medical personnel were named by a third doctor.[68]

On Friday, 5 October, the ward round entry noted:
‘Family present for discussions- have noticed subtle gait and speech changes.’
The plans was recorded as: ‘On emergency list for next week.’
The entry was made by the third doctor and there were no other medical personnel recorded.

On Saturday, 6 October a two line ward round record stated only:
‘Patient well.
Day leave.
Obs stable.’
It appears to be made by the third doctor and does not record any other medical personnel.

On Sunday, 7 October, a retrospective entry records Drs Zaheer/Wong saw the patient who went on day leave. The record stated:
‘Obs stable’.
The plan was: ‘CD with scans for family.’
This is the first entry which identifies the registrar, (Dr Zaheer) who reviewed Mrs Parsons after her admission.

On Monday, 8 October, the ward round again described Mrs Parson as:

[67] Doctor 3
[68] Doctor 3

‘Well, observations stable and afebrile, awaiting operation.’
The plan was: ‘? operation Tuesday.
- awaiting discussion with Dr Tollesson
-CD of scan.’

A later entry that day by a resident medical officer, Dr Poulgrain[69] recorded that Dr Papacostas did an evening ward round. He gave instruction for nil by mouth from midnight as there was a small chance of operating theatre tomorrow. It was recorded: ‘Will know if for operation by 10am.’

On Tuesday, 9 October, the ward round scribe was Dr Buchan[70]who recorded that Dr Papacostas conducted the ward round. Mrs Parsons was again recorded to be:
‘awaiting operation, well, obs stable and afebrile’[71]
The note recorded: ‘General discussions with patient and son about procedure and possibility of high grade glioma - Dr Papacostas will return this pm for further discussion.’
A further note was added:
‘NBM nil by mouth) until confirmed
‘No OT (operation) - will notify soon
-if not for OT today then NBM tonight ‘

Subsequently that day, an entry was made by the same resident medical officer[72] who recorded that Dr Papacostas rang the ward and indicated there was ‘no availability on the operating list today. Dr Tollesson wants to be the primary surgeon so surgery is re-scheduled until Friday. Dr Papacostas will contact Ann’s son David this afternoon to discuss. Patient can have day leave.’

Dr Papacostas’ evidence indicated he did not really become involved with Mrs Parsons’ care until the week commencing Monday, 8 October.

He recalled on that day[73] he became aware Mrs Parsons and her family were frustrated as she had been in hospital a long time. He was trying to arrange surgery and was willing to perform the surgery himself subject to theatre availability and Dr Tollesson’s consent, including the possibility of proceeding with another surgeon supervising. However, Dr Tollesson indicated he wanted to be the primary surgeon as he planned to use ALA guidance in the procedure and only a few surgeons were accredited to do so.[74] The operation was therefore scheduled for Friday, 12 October.

Dr Tollesson confirmed he discussed Mrs Parsons’ surgery with Dr Papacostas after Dr Tollesson’s return from leave on 8 October. Dr Tollesson considered it preferable that he undertook the surgery (rather than Dr Papacostas undertaking the surgery under guidance of another consultant, possibly on the Tuesday). Dr Tollesson considered the tumour was in a difficult position and there was high risk of a poor outcome.

[69] Doctor 4
[70] Doctor 5
[71] E5 p 126
[72] Doctor 5 DR Buchan
[73] T1-63-
[74] T11-63 39-46

In his evidence, Dr Papacostas confirmed the family, and in particular her son David, were surprised and unhappy that there had been no discussion around the likely diagnosis of aggressive brain tumour. He could not be sure whether he used this specific language to her son, rather than directly to Mrs Parsons on this occasion, which was the first time he had met her.[75]

The nursing entry at 13:40 that afternoon 8 October, recorded Mrs Parsons was teary this morning and stated feeling overwhelmed. It was noted the operation was now for Friday.

Dr Papacostas himself recorded in the notes later on Tuesday, 9 October that he met with Ann and her son David again.
He recorded:

> 'Discussed likely nature of lesion. Discussed the nature of surgery and associated risks and answered questions.
> Surgery planned for Friday
> Will attempt to obtain 5-ALA
> Consent form with patient.

The consent form was signed and dated by Dr Papacostas on 9 October. His usual practice was to explain the procedure and identify risks and then leave the document with the patient to allow them time to consider and sign. He said: 'I don't know if I formally assessed her (cognitive function) and I wouldn't have been comfortable, with most patients with a brain tumour, consenting them without the presence of family who know exactly what we are doing.'[76]

Dr Tollesson believes he was present for the consultation on 9 October and thought it was probably an hour in the company of Dr Papacostas.

He says he explained Mrs Parsons' disease and 'probably' tried to show her the films and where the tumour was located. He spent a lot of time so that the family understood the seriousness of the tumour. He 'thinks' he went through the risks and then Dr Papacostas recorded a note and completed the formal consent. Dr Tollesson's recollection of Mrs Parsons was not clear to the extent he really could not recall a specific neurological examination; 'quick one potentially'. Normally he would perform one.

On 9 October, Dr Tollesson performed surgery at the Royal Children's Hospital and his recollection is the consultation with Mrs Parsons and her family was late that afternoon or early evening. However, he also said possibly the consultation occurred next day on 10 October.

Dr Papacostas' recollection was that Dr Tollesson saw Mrs Parsons pre-operatively, possibly on the afternoon of 10 or 11 October, fairly briefly. He conceded there was no record of their consultation with the patient.

[75] T1-66
[76] T1-7-, 42-44

He thought this was 'most likely because it was an ad hoc review. It may have been, my best guess would be it would be along the lines of, let's go to see this patient before theatre. And it may have been a brief review. And there may not have been a resident there. I likely wouldn't have documented it given that I wouldn't have felt that it would have added anything on top of the entries that were already present.'[77]

Counsel assisting made the observation to Dr Papacostas that this was the first time a consultant neurosurgeon saw the patient and there was no record of this. When asked to comment on whether consultant neurosurgeons write in the progress notes, Dr Papacostas said, sometimes, not always. He confirmed there was no note made by Dr Tollesson himself. He said it would not have added to the clinical picture. [78]

Mrs Parsons subsequently signed the consent document on Thursday 11 October 2012.

Mrs Parsons' son David Pickham, visited his mother every day from 2 October 2012 and attended the majority of ward rounds. During that first week he became concerned and frustrated because he could not detect an actual plan of treatment for his mother other than references to surgery but without a date. Throughout the week there were different physicians but no clarity around diagnosis, communication or planned surgery. He had no confidence in the people who conducted the round on his mother each morning. They did not know the plan. He felt they were babysitting or nominally caretaking his mother and would check if there were any problems each day and simply indicated they were waiting for the plan of care. Mr Pickham was bewildered that they had never actually met Dr Tollesson by the end of that first week despite requesting to speak to him consistently.

His recollection was meeting Dr Tollesson briefly in the morning for about 5 or 10 minutes on the Wednesday or Thursday of the following week on 10 or 11 October. Mr Pickham was quite certain he only saw or spoke with Dr Tollesson on that one occasion.[79] He also confirmed on that particular occasion Dr Tollesson was accompanied by Dr Papacostas.

Mr Pickham recalled the circumstances. He said, 'It wasn't until Dr Tollesson arrived briefly on 9 October that a plan for surgery was finally provided to us.'[80] In this brief meeting Dr Tollesson told Mrs Parsons and her son that he suspected a glioblastoma which is a type of brain tumour. He went on to explain the plan for use of fluorescence to remove the maximal amount of tumour. He did not provide any prognostic outcome saying he did not like to speculate, but went on to say 'you'll be up and eating steak by dinner'. Mr Pickham specifically recalled clarifying this regarding whether his mother would be well enough to be eating the night of surgery and Dr Tollesson confirmed this. Mr Pickham recalled Dr Tollesson 'was very polite. He was apologetic that he was away and for the delays.'

Dr Papacostas thought a comment was made that usually one would be well the day after surgery and up and eating but could not recall the details stated by Mr Pickham.

[77] T1-67, 16-20
[78] T1-68, 4-6
[79] T 1-15,4-7
[80] Ex D3 p2

Mr Pickham's only recollection of 'consent' related to a tissue sample being taken and sent to a research lab. This was agreed. He could not initially recall any discussion around surgical consent, complications or risk. However, he then recalled Dr Papacostas coming back later on one occasion and having an in-depth discussion. During this discussion the consent form was left with Mrs Parsons. The pending surgery was discussed. This would appear to be the 9 October according to the medical record.

It is noted Dr Papacostas signed the consent document on 9 October and Mrs Parson signed it on 11 October.

On Wednesday, 10 October the ward round was scribed by Dr Buchan who identified Doctors Jonathan and Bernardi who were present. Mrs Parsons remained well, observations stable and afebrile. It was noted ophthalmology was to be chased up and this was followed up the next day.

On Thursday 11 October, ward round notes were again recorded by Dr Buchan who documented Doctors Papacostas and Jonathan were present. Preparations for surgery the following day included nil by mouth and ALA to be given at 05:00 on day of operation.

Mrs Parson spent time off the ward with family and returned to hospital by 22:00 on the evening prior to surgery.

Annexure B

Summary of medical record contained in autopsy report

Mrs Parsons was admitted to intensive care for recovery and was stable with a GCS of 15.

On the evening following surgery some right visual sensory neglect and Gerstmann's Syndrome associated with damage to the parietal lobe was noted. She was alert and able to follow basic commands but disorientated. Overnight her pupils became unequal and her confusion increased.

The pathologist noted the CT performed on the morning following surgery on 13 October 2012 showed a moderate amount of midline shift and a new occipital infarction (obstruction of the blood supply causing local death of the brain tissue) which was thought to have been due to a posterior cerebral artery stroke.

At 10:00 on 13 October, a senior registrar assessed her condition as unchanged through the morning with a GSC score of 14. She had expressive dysphasia, echolalia, obeyed commands and had no focal deficit. Discharged to the ward was advised.

At 11:37, a neurosurgical review advised the need for an MRI over the next few days to clarify the hypodensity and questions a posterior cerebral artery stroke. It was confirmed she could be discharged to the ward.

At 14:35, she was transferred to the ward where, upon arrival her GCS was noted to be 11. Observations were taken at 15:20 and remained stable. At 00:10, pulse and pressure had widened. The recording of her temperature was contradictory. The numbers recorded appeared to read 34.8 (hypothermic) but were plotted on the graphs between 35.1 and 36. Her GCS remained unchanged at 11 and pupils were reactive and equal.

At 04:30 (14 September) nursing staff entered the nursing bay to attend another patient. They heard Mrs Parsons make a short snoring noise and noted her leg was hanging between the bed rails. After attending to the first patient they checked on Mrs Parsons who was not breathing and there was no palpable pulse. There was froth around her mouth. They commenced cardiopulmonary resuscitation and the emergency team who arrived detected pulseless electrical activity arrest. Spontaneous circulation returned after administration of adrenaline and five minutes of CPR. A blood gas test was taken at 04:48 and showed hyponatraemia with a sodium level of 120mmol/L. An urgent CT showed cerebellar herniation and increased oedema. She was transferred to intensive care at 06:00. A probable unwitnessed seizure was suspected to have occurred, related to the posterior cerebral artery territory infarction. Her GCS was assessed as 3 and did not improve. She was diagnosed with probable brain death.

On 15 October 2012 cerebral perfusion scan confirmed brain death.