QUEENSLAND COURTS

CORONERS COURT OF QUEENSLAND

FINDINGS OF INVESTIGATION

CITATION:	**Non-inquest findings into the death of Daniele Antony Barichello**
TITLE OF COURT:	Coroners Court
JURISDICTION:	Brisbane
DATE:	21 February 2018
FILE NO(s):	2015/4867
FINDINGS OF:	John Lock, Deputy State Coroner
CATCHWORDS:	CORONERS: Health care related death, neurosurgery, delay in surgery

Contents

Introduction

Mr Barichello was 43 years of age. His medical history was uncomplicated and he had generally been well throughout his life apart from a history of asthma and an anaphylactic reaction to seafood.

He presented to the Emergency Department of the Brisbane Holy Spirit Northside Hospital, Chermside, on 2 December 2015 with a two week persistent headache, which was progressively worsening, including blurred vision on that day. A CT scan on the day of admission identified a colloid cyst of the third ventricle and periventricular hypodensity was noted. An MRI confirmed the results and also showed transependymal oedema.

Mr Barichello was admitted and his care managed by a Neurologist, Dr K. At the patient's and family's request, the following day he was transferred to another private hospital to be under the care of a neurosurgeon Dr A. Dr A discussed the pros and cons of surgical and conservative management options and Mr Barichello chose to proceed with surgical excision of the colloid cyst and possible craniotomy (if the former was not successful). Consent was signed. Surgery could not take place on 4 December and was booked for the following Monday, 7 December.

On Friday 4 December, Mr Barichello's pain was controlled with medication and he was independent of daily cares, even going to the coffee shop for lunch. On Saturday 5 December, his pain was increasing and he was nauseous and Dr A was contacted by phone, prescribing pain relief and anti-nausea medication. Mr Barichello remained in his room and did not eat due to a loss of appetite. He worsened during the afternoon and Dr A was notified, prescribing tramadol 4-6 hourly, neurological observations were increased to 2 hourly from 4 hourly and the surgery was reorganised for the following morning with intensive care planned post-operatively. At 9:30pm following an MRI, Mr Barichello refused a shower as he was feeling unwell, had not eaten but was taking small amounts of fluid. He had vomited twice and the pain medication was providing no relief. Dr A rang the ward on a number of occasions during the day checking on his patient's condition.

Mr Barichello was found unconscious on the bathroom floor at 4am on Sunday 6 December, in cardiac arrest with dilated pupils. He was resuscitated and transferred to ICU where he was intubated. Dr A attended and inserted bilateral frontal external ventricular drains but Mr Barichello’s condition did not improve. He did not regain consciousness and was declared brain dead on 7 December.

Autopsy examination

The Post-mortem examination of Forensic Pathologist Dr Rohan Samarasinghe, found the cause of death to be multi-organ failure with coagulopathy, acute exacerbation of chronic obstructive hydrocephalus (surgically treated) and secondary to colloid cyst of the third ventricle.

The associated neuropathology report confirmed the major pathology was the colloid cyst (10mm x 15mm x 20mm) in the third ventricle, which caused acute on chronic hydrocephalus (increased intracranial pressure) and associated brain swelling, herniation and haemorrhages in the brain stem.

A colloid cyst is a non-cancerous growth which, if it blocks the drainage system in the ventricles can cause hydrocephalus. This condition rarely causes sudden cardiac death.

The extraventricular drains used in this case can drain blood as well as fluid build-up, which can lead to symptoms such as vessel spasm and/or dural damage from epidural or subdural haemorrhage, and which can be a life threatening situation and require neurosurgical care.

Some haemorrhages increase in patients with coagulopathies, as in this case. There was an acute intraventricular haemorrhage, likely after the insertion of the extraventricular drains. The heart showed infarctions likely due to coronary insufficiency from multiple organ failure. There was also evidence of patchy bronchopneumonia (a common complication of patients with prolonged unconsciousness).

In the Forensic Pathologist's opinion, death was due to multi-organ failure secondary to acute exacerbation of chronic obstructive hydrocephalus resulting from the colloid cyst of the third ventricle. Emergency surgical intervention was undertaken as a lifesaving measure which has its own risks.

Concerns of family

Mr Barichello's family raised various concerns with respect to the conduct of various parties providing medical care to preserve and sustain the life of their loved one. In broad terms the concerns related to the continued delay in surgery and a lack of proportionate response to worsening symptoms. The concerns also queried if the outcome may have been different if surgery had been scheduled based on the worsening symptoms rather than being constrained by external factors such as lack of equipment.

Coronial investigation and clinical reviews

Statements and responses were obtained from nursing staff and the neurosurgeon Dr A. A number of clinical reviews were performed including by the private hospital and through the course of the coronial investigation. An independent expert opinion was commissioned by the Corners Court and responses were obtained from the hospital and Dr A. These are summarised below.

Review by Clinical Forensic Medicine Unit

The CFMU provided an initial review at the request of the coronial registrar.

Mr Barichello had a cyst inside his brain that interfered with the normal flow of cerebrospinal fluid. The colloid cyst is a non-cancerous growth that is considered developmental in origin. If they block the drainage system they can cause hydrocephalus and also rarely cause sudden cardiac death. In this case, the growth resulted in increased pressure of this fluid in his brain. His presentation involved primarily headaches, but also some drowsiness and some change in balance. The presentation leading to diagnosis was on or about the 2 December, with a subsequent referral from Mr Barichello's GP to Dr A on the 3 December, which is the day Dr A attended Mr Barichello for the first time.

The neurosurgeon treating Mr Barichello discussed surgical options and they elected for an endoscopic approach. This required waiting until Monday 7 December as the equipment was apparently not available. This seems to be the primary reason for surgery not being conducted earlier.

However, over the course of 5 December Mr Barichello described increasing headache, vomiting, nausea and suppressed appetite such that he didn't eat. He was prescribed increasing stronger opiate painkillers and antiemetics. The observation form is a 'QADDS' style and no particular concern is noted in any observations up to and including 0200hrs on the 5 December. The exception is the pain score is given as very high at 2330hrs on the 4 December. There is no entry around this time as to if Dr A was notified. It is the highest at this point. He was given 50mg Tramadol (an opiate painkiller) at this time and recorded ongoing pain, but improved at 0200hrs. The pain score above 7 is in the 'yellow' phase of the QADDS form and should therefore result in some sort of action (includes notifying superior and/or

increasing observation frequency). There is no documentation around this time so it cannot be said what occurred.

The neurosurgeon describes in his record that he was ‘contacted several times through the day to notify of (unreadable) H/A (headache)/vomit.’ The surgeon then stated he brought surgery forward to the Sunday morning for a craniotomy (hole in the skull) vs waiting for the endoscopic equipment. There is no documentation of the surgeon examining Mr Barichello at the time of his increasing symptoms so it was not certain if any examination happened.

The resuscitation is summarised and would appear a reasonable approach. The collapse has occurred in the bathroom where all initial resuscitation efforts were undertaken. This is a difficult area to do so such that Mr Barichello was subsequently moved into a ‘safer area’ according to the documenting nurse and an airway (endotracheal tube) placed. The timeline is a little difficult to follow here due to the amount of retrospective entries. It appears an hour after the arrest he was transferred to ICU and other lines were placed (central venous line, arterial line) and infusions of adrenaline and eventually noradrenaline added (these are drugs that strengthen the heart beat and increase the heart rate, so called inotropic and chronotropic drugs.

The cause of his collapse was not clear. He was subsequently given intravenous broad spectrum antibiotics, corticosteroids (dexamethasone), sodium bicarbonate, vitamin K, Lasix and insulin. The antibiotics appear to be to cover the emergency placement of extraventricular drains (EVDs) by the surgeon in an emergency; that is, nonsurgical conditions.

The neurosurgeons placed extraventricular drains in ICU to attempt to resolve the hydrocephalus. The post procedural CT scan demonstrated cerebral swelling and intraventricular and subarachnoid blood (bleeding around the brain and in the drainage area of cerebrospinal fluid in the brain), but resolution of previously noted raised intracranial pressure.

An ultrasound of the heart (echocardiogram) was performed and difficulties encountered. It was not possible to exclude a left ventricular outflow obstruction or assess valve function; the examiner noted the left ventricle to be ‘underfilled’ meaning the vascular system was somewhat depleted.

He was noted to be in liver failure (likely because the liver was not getting adequate blood supply during the cardiac arrest) and was thought to have aspirated (stomach contents inhaled) or a degree of increased fluid in the lung associated with the brain injury.

In all of this Mr Barcichello did not show signs of regained consciousness or any improvement in consciousness. His total ‘downtime’ (time without adequate heart function) was unknown. His last observations were recorded at 0200hrs. He was found collapsed at 0400hrs.

His haemoglobin (a measure of total blood available) was measured as low (64: normal >120) and he was thought to be bleeding from his upper gastrointestinal tract. As a result he required transfusion of 4 units. This is a significant bleed. More than 500mLs of coffee ground (changed blood) stomach contents were aspirated via the nasogastric tube. The bleeding appears to have occurred after 1000hrs on the 6 December as prior to this they were essentially low normal levels. Bleeding may have occurred earlier and become more significant in light of the liver failure (associated with increased bleeding tendency).

On the 7 December testing conducted confirmed brain death. Supportive care was removed after discussion with family and Mr Barichello died 20 minutes later.

The issues arising from this relate to concerns from family around delay. Dr A stated in his notes on the 6 December that the delay was due to the lack of availability of specialty equipment required to undertake the surgery endoscopically. That he moved the surgery date forward and abandoned this approach is apparent due to the increasing headache severity.

This condition is known to have an association with sudden cardiac collapse. This appears to have occurred here. The warning signs of increasing headache were actioned by bringing forward the operation time. So saying, it was not sure when Dr A decided this as it is not documented.

The record of the insertion of the Extraventricular Drains (EVDs a procedure involving neurosurgery) is not documented and was associated with complications of bleeding. This probably did not lead to Mr Barichello's death as he was already unconscious at this time. The bleeding around then is described as significant. It is possible this was acceptable in the circumstances. Such EVDs and the procedure would be considered an attempt at life-saving intervention if the increased pressure was the cause of the collapse.

The principal concern is only in relation to Mr Barichello not being medically reviewed on the 5 December when he was describing increasing headache, nausea and did not eat. This would seem to be a red flag, and was treated as such by the surgeon in bringing the operative date forward. The CFMU stated it would have been reassured to see documentation indicating that the surgeon reviewed Mr Barichello in making this decision as it would mean he was aware of his clinical presentation at the time of making such decisions.

The other concern is the lack of documentation around 2330hrs on the 5 December when his headache level is reported at its worst. The CFMU would expect action is meant to follow any entry in a highlighted area of the observation form. In this instance pain relief was given, which may well be the action to follow such an observation.

The likely cause of death is as described.

Earlier surgery would have prevented this cause of death.

The delay for equipment needs to be explained.

The CFMU advised the decision about the timing of the surgical intervention, the lack of documentation and subsequent insertion of drains would be best addressed by seeking the opinion of a neurosurgeon.

Root cause analysis

The hospital clinically reviewed the treatment through a Root Cause Analysis (RCA).

The RCA team reviewed the clinical history and determined the root cause for the death was the decision to defer operative treatment of the patient's colloid cyst because of the unavailability of surgical instruments, along with the decision to continue monitoring in a surgical ward environment, which increased the likelihood of a poor patient outcome in the event of sudden patient deterioration.

The RCA noted that as the relevant endoscopic instrumentation was not routinely used at the hospital and therefore required sourcing from an instrument company as a loan set, a medical decision was taken to defer the operative treatment for four days.

The RCA team recommended that patients should not be offered procedures involving non-routine line equipment unless it has been determined that the equipment is able to be obtained

without material delay in performing the procedure. Visiting Medical Officer (VMO) neurosurgeons were to be encouraged to confirm availability prior to offering procedures reliant on such equipment to patients and they were to be reminded of their obligation to make direct arrangements for loan equipment when necessary.

The RCA also noted that the patient's vital signs and neurological observations remained stable despite worsening headache and nausea, and this may have led to a medical decision not to transfer to a more acute observation area.

It was recommended that Visiting Medical Officer (VMO) surgeons are advised about the benefits of referral of unstable patient's to intensivists in Intensive Care for monitoring. Nursing staff were reminded that they were empowered to discuss treatment options with VMO's.

Response by the private hospital

The lawyers for the hospital noted the outcome of the RCA. In relation to concerns that nursing staff had not been satisfied with the response from the VMO to their concerns it was stated that in accordance with the relevant clinical deterioration policy, concerns were escalated by nursing staff to Dr A and he responded with further orders that nursing staff felt were appropriate at that time, including to bring forward the surgery to the Sunday morning after direct concern was raised by the nurse during the evening of 5 December 2015.. The issue was raised with relevant nursing staff who stated that at no point did they feel unsatisfied with the responses to their concerns.

The decision to transfer a patient to ICU for monitoring is a clinical decision to be made by the treating Doctor. The fact that this is an option has been reiterated to all VMO's practising at the hospital.

The hospital noted the concerns of family suggesting that there be consideration to reducing a standard risk assessment tool for colloid cysts. The hospital noted that specific clinical pathways exist for more common presenting conditions, but it would not be feasible to develop a pathway for every possible presenting condition for which there is a material risk of sudden death.

Response of Dr A

Dr A reviewed the clinical history are set out by the CFMU and found it accurate. He agreed with the conclusion that the decision to delay surgery led to a poor outcome.

Dr A stated that the patient presented on Thursday, December 3 with headache of three weeks' duration and getting worse, and a decision was made to proceed with endoscopic surgery as soon as conveniently possible. Several attempts were made to organise the theatre for Friday but due to a perceived lack of theatre time and unavailability of endoscopic equipment the procedure was delayed. Dr A stated this was not an uncommon scenario in his 25 years of clinical neurosurgery practice at multiple hospitals throughout Australia and the UK.

Dr A stated his preference was then to delay the operation until Monday should the condition remained stable. The reason for this was to allow an endoscopic procedure to be performed rather than craniotomy, and weekend surgery had higher complications.

From the information available it is understood the surgeon’s secretary had initially approached a private medical equipment company, Storz, for a loan of the necessary instrument but were advised it would not be available until 9 am the following Monday morning. The surgeon also believes his secretary contacted or had enquiries made with the Princess Alexandra Hospital and Royal Brisbane and Women's Hospital.

The private hospital theatre floor coordinator was asked by the surgeon's office for assistance and she contacted the Princess Alexandra Hospital to request a loan of their endoscopic ventricular scope. At least five different people were spoken to at the Princess Alexandra Hospital with the eventual decision being communicated back to the coordinator that they would not loan the instrumentation because it was too expensive, too fragile and they may require use of it themselves.

Dr A stated he reviewed Mr Barichello on several occasions through Friday and again on Saturday morning. His condition was stable. Mr Barichello had a preference to undergo surgery over the weekend but after discussing the pros and cons of weekend surgery and craniotomy vs endoscopic he agreed to wait until Monday. Dr A was not on call for the weekend and the case was discussed with his colleague and he was informed that if there was any sudden deterioration there may be a requirement for an external drain.

Dr A stated that throughout the course of Saturday he received a number of calls from the ward documenting increased headaches and vomiting. Towards the end of the afternoon he made the decision to bring the operation forward to Sunday morning. He considered operating on Saturday night but this would have come and greater risks of a bad surgical outcome compared with day time surgery so he decided against it. Mr Barichello continued to have a GCS of 15.

With relation to the issue of bringing the surgery forward to the Sunday morning, from the surgeon's statement it is apparent this was not because the equipment was unavailable but a clinical decision because of a deterioration in his condition. It is also apparent communication of this decision was not made directly with Mr Barichello, which to some extent explains the lack of documentation. According to the statement by the surgeon, the decision was made by the surgeon in the evening because during the afternoon of 5 December the surgeon had received a number of calls from the ward indicating there was ongoing vomiting and his headache had intensified. The surgeon spoke to his anaesthetist and surgical assistant checking they were available if he needed to bring the surgery forward. Their availability was confirmed. At approximately 7:10 PM the surgeon states that he decided he would proceed with an open craniotomy the next morning. The theatre was booked for 8:30 AM, however he told the ward and other colleagues they would operate sooner if there was a demonstrated neurological deterioration.

He states he also made arrangements to meet the patient and his wife at 7:30 am on the Sunday morning to discuss the change in planned surgery.

The surgeon agrees now he should have gone into the hospital to review the patient before making the decision but cannot say that he necessarily would have brought the surgery forward to the middle of the night as opposed to early next morning. He states that at the time, he never anticipated his collapse in the 4-5 hours pre-surgery.

He last had contact with the ward at 11 PM and was advised the patient was comfortable with a GCS of 15.

He received a telephone call from the ward at 5 AM the next morning advising the patient had collapsed and was receiving resuscitation. He arrived 15 minutes later and inserted two external drains with no success.

Dr A stated, that with the value of hindsight, it was strongly indicated that he had erred in not taking the patient to theatre on Saturday night. At no stage did he consider Mr Barichello would decompensate so quickly from a GCS of 15. He was also cognizant of the fact that more

litigation arises from colloid cyst surgery going wrong (which would have been higher on the weekend or in the middle of the night) than from sudden preoperative demise.

Dr A also agreed that with the value of hindsight, Mr Barichello would have been better cared for in intensive care although at the time he did not consider it as he was GCS 15 throughout.

Dr A reviewed the RCA report and agreed with the findings and recommendations. He agreed that he should have moved the operation forward to Saturday night rather than Sunday morning and the delay in performing surgery caused a tragic and unnecessary death.

Independent medical opinion by Associate Professor Laidlaw

Dr Laidlaw is the Director of Cerebrovascular Neurosurgery at Royal Melbourne Hospital.

Associate Prof Laidlaw stated the evidence indicates that Dr A was fully aware of the patient's pathology and the clinical significance of the hydrocephalus on 3 December. At that stage the patient's symptoms appeared to be relatively well controlled. He considered the plan to admit the patient for observation and to plan for an early semi-elective surgery was not unreasonable. The logistical problems necessitating that surgery not occur on 4 December are not uncommon when planning semi-elective procedures, and did not necessarily exclude the option of urgent surgery should that be required. Given those logistical problems and also considering that the patient was quite well on the Friday, Dr A's plan at that stage to continue observation in hospital and have surgery on Monday 7 December was not unreasonable.

Associate Prof Laidlaw stated that considering the known risk of symptomatic obstructive hydrocephalus causing rapid deterioration he considered that if urgent surgery is not planned then close neurological observation and non-narcotic analgesia would be advisable. He opined that although not causing significant negative consequences, he personally thinks the continued management of the patient in a general ward with four hourly neurological observations and Endone on Friday 4 December was an error in clinical management.

Associate Professor Laidlaw stated that the deteriorating symptoms on 5 December were classical for increasing Intracranial Pressure (ICP) secondary to acute hydrocephalus, with the association of the increasing headache, anorexia, nausea and vomiting indicating a heightened risk of acute neurological deterioration. He noted that Dr A was made aware of this appropriately by nursing staff. His subsequent calls to the ward, increasing the frequency of neurological observations to two hourly and rescheduling the surgery on a semi-urgent basis for early Sunday morning demonstrated his clinical concern. However, Associate Professor Laidlaw considered the escalation of narcotic with tramadol and particularly the continued management on a general ward with two hourly neurological observations was a very significant error in clinical management. Management with continuous observation in an intensive care or high dependency unit would have allowed earlier recognition of deterioration and early response.

Associate Prof Laidlaw accepted that there is an extremely difficult decision to be made regarding the risk/benefit analysis between urgent after hours surgery as opposed to semi-urgent planned surgery and Dr A did consider these factors and had provided appropriate rationale for his plans. However, in this particular case, not performing urgent surgery when the patient symptoms worsened on Saturday was a clinical error with catastrophic consequences.

Associate Prof Laidlaw considered the hospital's Root Cause Analysis was comprehensive.

In respect to the suggestion there should be a specific clinical pathway for colloid cysts, he stated in his report that “Colloid cysts are relatively rare and often require no intervention, but

are certainly associated with rapid neurological deterioration and sudden death … The most common presenting complaints were sequelae of hydrocephalus such as headache, nausea/vomiting, blurred vision or diplopia, dizziness or ataxic gait, cognitive decline, and syncope … (discussion of case studies) It is therefore the recognition of symptoms of raised intracranial pressure (ICP), and the associated high risk of deterioration, that should well be understood in a neurosurgical ward. There is no need to have a specific clinical pathway for escalation of care and management for colloid cysts or any other relatively uncommon diagnosis, but it is necessary to have clearly understood processes for recognition and treatment escalation of any patient symptoms of raised ICP… (including) an alternative clinical pathway allowing nursing staff to initiate transfer to ICU if they consider this necessary."

Associate Prof Laidlaw agreed that it is the treating doctor that must hold the responsibility for any decision to manage a patient in intensive care or on a ward, but also considered that a neurosurgical hospital should have an alternative clinical pathway allowing nursing staff to initiate transfer to intensive care if they consider this necessary.

Associate Professor Laidlaw stated that Mr Barichello's deterioration had been documented for 12 hours or more and "this deterioration would be expected to be identified in an ICU (or HDU) environment, allowing emergency intervention (e.g. intubation and ventilation and ventricular drainage) and quite possibly a satisfactory outcome." It was also opined that "extremely close observation" was warranted given Mr Barichello's symptoms and opioid treatment and constant monitoring was appropriate, "to provide an alert for increased risk of rapid neurological deterioration" which could be masked by the use of narcotics.

In this regard Associate Professor Laidlaw was critical of having the doors to the nurse's station and patient rooms routinely closed as not appropriate nor was it in line with general medical standards. He stated he would go further and said that managing such a patient without constant monitoring (ie ICU/HDU/personal nurse in room) is not appropriate.

Associate Professor Laidlaw stated the focus on the unavailability of the loan endoscope was not a critical issue. Although it was one factor that influenced Dr A's decision to delay the semi elective surgery initially, Dr A had alternatives available if necessary. The loan equipment was not a significant factor preventing surgery at the time Mr Barichello's symptoms deteriorated on the Saturday.

Associate Prof Laidlaw was not critical of the decision to use narcotics and their judicious use has been common place in the management of neurosurgical patients but emphasised that this was inappropriate if it was not the subject of close neurological observations in an ICU or HDU setting.

Response by Dr A

Dr A provided a further response and was in general agreement with the opinions of Associate Professor Laidlaw. He frankly conceded he committed an error of judgement in not having brought forward the surgery to the Saturday. In the future he states he would not run the risk of delaying surgery in similar circumstances.

He also agreed that he should have ordered closer neurological observations and/or transferred Mr Barichello to intensive care pending surgery. He also concedes that although the use of narcotics probably did not play any role in the outcome he accepts the opinion of Dr Laidlaw and no longer prescribes narcotic analgesia for patient's awaiting craniotomy unless they are being monitored in a high dependency or ICU setting.

Alternative Clinical Pathway allowing nursing staff to initiate transfer to intensive care if they consider this necessary.

On the issue of an alternative pathway suggested by Dr Laidlaw, Dr L, consultant neurosurgeon was asked to comment. Dr L stated the alternative clinical pathway referred to by Dr Laidlaw had never existed in the many hospitals he has worked in both Australian and overseas public and private hospitals. He stated the transfer of a patient to ICU, when they do not meet the criteria for admission and not at the direction of the admitting Doctor, to the best of his knowledge, does not occur, nor does a process whereby nursing staff can initiate an admission of a patient to the ICU independently.

He opined that if a pathway were in place, which would allow nursing staff to initiate the transfer of a patient to ICU should they consider it necessary, then this may place the patient at risk and not be clinically appropriate. In his opinion expecting nursing staff to make such decisions is inappropriate and places an onerous burden on the nursing staff, whilst also in practice requiring a nurse to make a judgement call that the clinical decision making of the admitting doctor is incorrect. There were various serious issues arising in respect to continuity of care of a patient, as the intensivist in the ICU could potentially have no clinical knowledge about the patient and no orders from the admitting practitioner in respect of the care that the patient requires and also therefore places and inappropriate and unnecessary burden on ICU nursing staff.

Conclusion

Daniele Barichello died partly as a result of complications of the insertion of extraventricular drains causing intraventricular haemohorrhage. This was required due to there being a sudden (over hours) exacerbation of obstructive hydrocephalus resulting from a colloid cyst of the third ventricle.

A decision had been made to remove this endoscopically (as distinct from open craniotomy) but the surgery was delayed from a Friday because the equipment was not available at the Private Hospital at the time but was being made available the following Monday. Over the weekend Mr Barichello's condition deteriorated and a decision was made to perform a craniotomy on the Sunday morning. However, Mr Barichello lapsed into an arrest prior to that surgery being performed.

It is apparent that the correct decision should have been to bring forward the operation to the Saturday evening. This has been frankly admitted by the surgeon involved.

The private hospital completed a Root Cause Analysis and determined the root cause for the death was the decision to defer operative treatment of the patient's colloid cyst because of the unavailability of surgical instruments, along with the decision to continue monitoring in a surgical ward environment, which increased the likelihood of a poor patient outcome in the event of sudden patient deterioration.

Recommendations have been made by the hospital to address the issues identified.

A copy of the findings and other material have been provided to the Office of Health Ombudsman, which is also investigating.

Findings required by s. 45

Identity of the deceased:	Daniele Antony Barichello
How he died:	Daniele Barichello died partly as a result of complications of the insertion of extraventricular drains causing intraventricular haemohorrhage. This was required due to

there being a sudden (over hours) exacerbation of obstructive hydrocephalus resulting from a colloid cyst of the third ventricle.

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Place of death: Private Hospital, Brisbane QLD

Date of death: 7 December 2015

Cause of death:

1(a) Multi-organ failure with coagulopathy
1(b) Acute exacerbation of chronic obstructive hydrocephalus (surgically treated)
1(c) Colloid cyst of the third ventricle

I close the investigation.

John Lock
Deputy State Coroner

21 February 2018