CORONERS COURT
OF NEW SOUTH WALES

Inquest:	Inquest into the death of Paul Lau
Hearing dates:	5-9 February 2018
Date of findings:	29 March 2018
Place of findings:	NSW State Coroner's Court, Glebe
Findings of:	**Acting State Coroner, Magistrate Teresa O'Sullivan**
Catchwords:	CORONIAL LAW – Cause and manner of death TrakCare Electronic medical records Anaesthetics Opioids Fentanyl Handover practices
File number:	2015/181507
Representation:	Ms Kirsten Edwards, Counsel Assisting, instructed by Ms Kate Lockery of the NSW Crown Solicitor's Office. Ms Kate Richardson SC for Macquarie University Hospital and Assistant in Nursing Murdoch. Mr David Lloyd for Macquarie University Pharmacy. Mr Stephen Barnes for Dr Orison Kim. Mr Patrick Rooney for Ms Diana Bui. Mr Matthew Byrne for Registered Nurses Gao, Chung, Feng, Discombe, Villanueva, Tan, Perez and Jin. Mr Rod Foord for Mr Johnathon Lau and Mr Curtis Lau Ms Ying Zhang for Ms Alice Wong.

Findings:	**Identity of deceased**: The deceased person was Paul Lau, born 18 May 1961. **Date of death**: Mr Lau died on 19 June 2015 **Place of death**: Mr Lau died at Macquarie University Hospital, NSW **Cause of death:** The medical cause of the death was aspiration pneumonia caused by multiple drug toxicity. **Manner of death:** The death was caused by a prescribing error by an anaesthetist, which led to Mr Lau receiving medication intended for another patient whilst he was recovering from ACL reconstruction surgery. The error was not detected by Hospital staff before his death.
Recommendations:	**To the Macquarie University Hospital** 1. That a working party be established to consider lessons learned and possible reforms which could be implemented at Macquarie University Hospital ("the Hospital") as a result of the death of Paul Lau on 19 June 2015: a. That the working party comprise a representative from at least Information Technology ("IT"), the Anaesthetics & Perioperative Services Department ("Anaesthetics Department"), the Nursing directorate, the Macquarie University Pharmacy ("the Pharmacy") and the Patient Safety and Quality Manager. 2. That the working party consider, or in the alternative, the Hospital considers, the most effective way to implement the following suggested reforms: *Presentation of Paul Lau's Case* a. A staff seminar or seminars be conducted with the participation of staff from at least the Anaesthetics Department, nursing staff and the Pharmacy about the missed opportunities to detect the prescribing error in Paul Lau's case and the lessons learned from his death; b. That the nursing staff involved in Paul's care be

	consulted about how that seminar be presented and have the opportunity to address the seminar if they wish; and c. That the seminar address, at a minimum, communication, handover, opioid policy, observation of patients on high-risk medication, Schedule 8 checks and responding to patient deterioration. *TrakCare Changes* d. Give ongoing consideration to a method of verifying patient identity before medical practitioners submit medication orders on TrakCare, including specific consideration of: i. Urgent short term methods of ensuring patient identity verification if software changes are likely to be prolonged in implementation; and ii. The manual entry of the patient's name prior to submitting a medication order; e. A field/box labelled "current medications" or "medications history" (as determined appropriate) be included in the pre-anaesthetic assessment (see Tab 36C, Annexure C of Exhibit 1); f. A field labelled "post-operative pain plan" (or other description as determined appropriate) be added to the Recovery Progress Notes template (see Exhibit 5); g. That investigation be undertaken into the feasibility and efficacy of an alert when medications are added to a patient's chart after the patient file is allocated to PACU/Recovery; h. That representatives of at least IT and the Anaesthetics Department consider the most effective way of ensuring that TrakCare alerts enhance patient safety without unduly distracting or diverting anaesthetists; including i. How to safely reduce the number of alerts; ii. Removing the default 'batch' override system; iii. Creating a hierarchy of alerts; iv. Creating a distinct alert for identical

	duplicate “one touch” prescribing; v. The effective use, if any, of font, format, sound, colour and placement for alerts; and vi. Known literature and clinical guidelines on safe e-prescribing. *TrakCare Proficiency* i. That medical practitioner accreditation include a TrakCare assessment process whereby it is mandatory for a person separate from the user to confirm that the user is proficient to safely use the system; j. That consideration be given to the most appropriate person to conduct the assessment and if the assessment would be more effective in person or on-line; and k. That TrakCare proficiency for anaesthetists be assessed by the use of simulations or scenarios designed in consultation with the Anaesthetics Department. *Handover Practices* l. That a staff seminar or seminars be held involving staff from nursing and the Anaesthetics Department about handover practices which would include simulations of handovers by staff, the provision of feedback and discussion of mechanisms to enhance the communication between nursing staff and anaesthetics staff; m. That an audit or audits be conducted in relation to safe handover practices at the Hospital with particular priority given to practices at PACU/Recovery; n. That there be a minimum number of audits conducted annually at appropriate intervals; and o. That the results of those audits be published on the Hospital intranet and be held by the Nursing Directorate. *Perioperative Management* p. That, at least, representatives of the Anaesthetics Department and the nursing staff

	consider mechanisms to provide safe and effective perioperative management for patients, including: i. Monitoring of patients taking high risk medications; ii. Postoperative review of patients by anaesthetists in PACU/Recovery and on the ward; iii. The introduction of a pain service; and iv. Relevant existing clinical guidelines including Australian and New Zealand College of Anaesthetists guidelines, Clinical Excellence Commission guidelines and any known proposed upcoming reform.

Table of Contents

The Coroners Act 2009 (NSW) *in s. 81(1) requires that when an inquest is held, the coroner must record in writing his or her findings as to various aspects of the death.*

These are the findings of an inquest into the death of Paul Lau.

Introduction

1. On 18 June 2015, Paul Lau, aged 54 years, underwent day surgery for an anterior cruciate ligament reconstruction to his left knee at Macquarie University Hospital ("the Hospital"). Paul expected to be discharged home the following day. However at approximately 12:56am on 19 June 2015, despite attempts to resuscitate him, Paul was pronounced dead.

Why an Inquest was held

2. The role of a Coroner, as set out in s.81 of the *Coroners Act 2009* (NSW) ("the Act"), is to make findings as to the identity of the person who died, when and where they died, and the manner and cause of their death. The manner of a person's death means the circumstances surrounding their death and the events leading up to it. Pursuant to s.82 of the Act, a Coroner also has the power to make recommendations concerning any public health or safety issues arising out of the death in question.

3. In Paul's case, the coronial investigation gathered sufficient evidence to answer the questions about Paul's identity, where and when he died, and the medical cause of his death. The inquest was primarily focused on the manner of Paul's death, including identifying the direct and contributing causes, and the consideration of recommendations that may prevent future deaths.

Issues at Inquest

4. The issues which arose for consideration at the inquest were as follows:

    - How and why Paul Lau was erroneously prescribed medication, including a Fentanyl Patch and a Fentanyl PCA, on 18 June 2015;

    - Did the introduction of the TrakCare electronic medical record system to Macquarie University Hospital cause or contribute to the death of Paul Lau;

    - Why the prescribing error was not detected during the remainder of Paul Lau's care at the Macquarie University Hospital from 18 to 19 June 2015;

- Were any of the deficiencies in nursing care identified by RN Sally Sutherland-Fraser caused by systemic issues, and if so, what further steps, if any, could be taken to address those issues; and

- What steps have been taken by the interested parties to reduce or prevent the risk of prescribing errors at Macquarie University Hospital (or otherwise in their practice) and are there any further steps which could be taken to reduce the risk.

The Evidence

5. The inquest proceeded over five days. An eight volume brief of evidence was tendered containing a large number of statements, expert reports, medical records and material from the disciplinary proceedings conducted by the relevant professional bodies. Eight witnesses were called to give oral evidence. There was considerable agreement reached prior to the inquest between the interested parties as to the facts and the conclusions of the expert witnesses. This significantly refined the issues to be explored and shortened the inquest. I commend all parties for their participation in that process.

Background

6. Paul was born in Hong Kong on 18 May 1961. From about 16 to 19 years of age, he lived with his brother Matthew Lau in Canada and then moved to Australia with Matthew in 1983. Paul subsequently became an Australian citizen.

7. In 1985, Paul returned to Hong Kong and married his first wife. In 1987, Paul and his then wife returned to Australia for two years, before moving back to Hong Kong in 1989. Whilst in Hong Kong, Paul and his first wife divorced. Paul then married a second time and his son, Yung Sing Johnathon Lau (known as Johnathon Lau) was born.

8. In 1996, Paul and his family moved to Australia. Paul had a second son, Curtis Kerby Lau, born in 2000. In July 2013, Paul separated from his second wife and they subsequently divorced, with effect on 3 January 2015. Paul enjoyed cooking and ran a Japanese restaurant in Parramatta until he ceased work in 2014.

9. From about 2011, Paul suffered from a sore left knee, caused by an injury to his anterior cruciate ligament (ACL) sustained in a skiing accident. The injury was aggravated when he fell in his restaurant in 2013 and again when he slipped in a ditch in April 2015.

10. At the time of his death, Paul was in a relationship with Alice Wong. Paul had a passion for cars, including driving them and reading about them in magazines. On 1 July 2015, Paul was meant to commence a job in the car industry.

Autopsy Report

11. Forensic pathologist, Dr Theresa Ly, conducted an autopsy on 22 June 2015. Dr Ly opined that the cause of death was aspiration pneumonia resulting from mixed drug toxicity. Dr Ly concluded that Paul most likely died from Fentanyl toxicity, which would have caused severe respiratory depression, coma and hypotension producing a tendency to vomit and inhale gastric contents. Paul suffered from coronary artery disease and the autopsy report stated that, "[t]he degree of coronary artery disease which was greater microscopically than was appreciated with the naked eye would have contributed" to Paul's death. Dr Ly also opined that Ropivacaine toxicity possibly contributed to the death, however the most likely explanation for the apparent toxic levels of Ropivacaine is post-mortem redistribution of the drug.

12. Toxicological examination found the presence of the following quantified substances in Mr Lau's preserved blood:

Fentanyl	0.008 mg/L (8 ug/L)	Potentially fatal level (fatal range 3-28ug/L)
Irbesartan	0.13mg/L	Non-toxic level
Lignocaine	<0.05mg/L	Non-toxic level
Paracetamol	7.8 mg/L	Non-toxic level
Ropivacaine	2.5mg/L	Possibly toxic level

The Hospital and the Pharmacy

Ward 1

13. Ward 1 of the Hospital is an orthopaedic ward with 31 beds. On the night of 18 to 19 June 2015, Ward 1 was close to full, with 28 patients including 12 post-operative patients, 9 patients with patient controlled analgesia ("PCA") devices, 1 patient with spinal anaesthesia and 1 patient with an ongoing blood transfusion. Handover between the afternoon and night shifts normally happened at around 9:30pm. On 18 June 2015, handover occurred closer to10:00pm.

14. Each shift of nurses has a team leader. On 18 June 2015, Maricris De Los Santos (nee De Vera), Registered Nurse ("RN"), was the team leader on Ward 1 for the shift from 2:00pm to 11:00pm ("the afternoon shift") and Sandy Perez,

RN, was the team leader on Ward 1 for the shift from 9:30pm to 7:30am ("the night shift").

15. During the afternoon shift, RN Olivia Villanueva was allocated primary care of Paul. During the night shift, three registered nurses were working on Ward 1: RN Sandy Perez, RN Kelly Jin (a clinical nurse specialist ("CNS")) and RN Thuy Pham (who came from Ward 4, a general surgical ward).

16. At the start of the night shift the RNs were told which patients they would look after by the team leader. RN Pham was allocated 10 patients. RN Perez and RN Jin decided to nurse the remaining 18 patients in a "team nursing" model. "Team nursing" involves the distribution care of patients between nurses with specific tasks assigned to each nurse.

17. In addition to the registered nurses, Ms Teneka Murdoch was working as an assistant in nursing ("AIN") during the night shift. The role of an AIN is to assist nurses under the supervision of a RN. An AIN working in a ward under a team nursing model is not usually allocated particular patients but assists nurses to complete tasks like completing observations and prioritising any patients with a particular issue.

18. As at 18 June 2015, the usual practice was for handover to take place at a patient's bedside or just outside their room if they were asleep. After handover, it was customary for the RN team leader to write out a plan for the shift.

TrakCare

19. TrakCare is a complete (end to end) electronic medical records system. It manages all aspects of a patient's hospital "journey" including admission, prescription and administering of medication, managing laboratory results, and managing documentation and forms. TrakCare is a product of Intersystems ("the vendor"), an American company, and is used in hospitals worldwide, including in some small Australian hospitals. Prior to the introduction of TrakCare, the Hospital used Metavision and Medchart, among others, for inpatients records.

20. TrakCare was implemented at the Hospital on 2 May 2015 and rolled out hospital-wide for all new admissions. TrakCare was rolled out in this manner, rather than in a pilot or staged approach, as it was considered safer not to have concurrent systems operating within the hospital.

21. Prior to the introduction of TrakCare, designated "superusers" were given in depth training by the vendor. Those superusers then "on-trained" staff. Following the introduction of TrakCare there was a noticeable increase or "spike" in errors, including prescribing errors, however none of these errors caused the death of a

patient or any adverse consequences for patients. The inquest was informed that the number of errors has since declined.

22. Following the introduction of TrakCare, there was dissatisfaction amongst some users with the system, however some level of dissatisfaction as a result of the change was expected.

23. On 18 June 2015 TrakCare was not available from 10:45pm to11:38pm. Certain staff were informed of the planned outage the day prior to the outage and this was confirmed with the Nursing Unit Managers during their meeting at 9:30am on 18 June 2015. Nurses were informed in advance of the planned outage by the Nursing Unit Managers and also by an all-staff email sent at 4:04pm. During the outage, nurses were not able to record patient notes on TrakCare.

The Pharmacy

24. Macquarie University Hospital Pharmacy ("the Pharmacy") services the Hospital and the general public.

25. Prior to the introduction of TrakCare in May 2015, the workflow allocation in the Pharmacy was "ward based". This meant that the pharmacists were allocated wards and were required to manage the allocation of medication, the dispensation of medication and the performance of clinical reviews (as required) to the wards allocated. However, although each pharmacist was allocated to a ward, this did not mean that only a single pharmacist worked solely on that ward. Multiple pharmacists could be involved in the tasks for each of the wards due to shift changes and the need to cover lunch breaks. Additionally, when the pharmacists were conducting the clinical rounds for their ward, the pharmacists remaining in the dispensary would allocate and dispense medication for that ward, if necessary.

26. Following the implementation of TrakCare, the workflow allocation in the Pharmacy changed to "role based" to address the different workloads between wards. The allocated roles included a dispensary manager, a dispensing pharmacist, a checking pharmacist and, if different, a clinical pharmacist. This meant that up to four pharmacists were assigned the roles of allocating and dispensing medication, checking medication and delivering medication, and performing clinical reviews (as required) on the wards. The nature and scope of the relevant roles and responsibilities, however, did not change. There was also some cross-over of roles to allow for shift changes and lunch breaks.

27. The role of the Dispensary Manager was to review and allocate medications from the Pharmacy workbench, take phone calls, and delegate dispensing and other work to the dispensing pharmacist.

28. The role of the dispensing pharmacist was to dispense medications, handle scripts from the Pharmacy shop, put away orders and perform tasks delegated by the TrakCare/Dispensary Manager. Where possible, the dispensing pharmacist helped with medication allocation and reviews on the Pharmacy workbench. The dispensing pharmacist stayed in the dispensary to ensure medication was ready for the clinical pharmacist to do their ward rounds and review their patients. The role of the dispensing pharmacist included ensuring that the prescribed medication was appropriate for the patient in light of their demographics, reason for admission, known allergies and current medication profile.

29. Another pharmacist (the checking or reviewing pharmacist) would check the medication to ensure that the medication, amount and instruction information was consistent with the prescription and was for the patient nominated in the prescription.

30. The role of the clinical pharmacist was to deliver medications to the ward and conduct clinical reviews of medications. Clinical reviews were only conducted by the clinical pharmacist if another pharmacist or ward staff member expressed concern about a patient's medication, or if the patient was deemed to require a clinical review such as elderly patients, patients who were taking five or more regular medications and/or patients who had significant undergone medication changes whilst in Hospital.

31. At the time of Paul's death, TrakCare contained the complete medical record of a patient. TrakCare recorded all medications administered to a patient within the Hospital, including medications administered in theatre. TrakCare allowed a pharmacist to review a patient's medication history online in the Pharmacy.

32. On 18 June 2015, Ms Diana Bui was working in the role of the dispensing pharmacist and Ms Hye Lim Chang was working in the role of the clinical pharmacist.

Consultations and hospital admission

33. On 8 May 2015, Paul saw Dr Hien Tran, GP, in relation to pain and old injuries in his left knee. Dr Tran referred Paul to Dr Peter Walker, orthopaedic surgeon. Paul had no previous record of serious medical illness. He had hypertension, for which he was prescribed Karvezide, and mild hyperlipidaemia.

34. On 26 May 2015, Dr Walker reviewed Paul in his private rooms. Paul presented with a history of ACL rupture of his left knee three years previously whilst skiing. He had also recently suffered several episodes of the knee giving way, with the last episode causing Paul considerable pain. Dr Walker's examination confirmed

the finding in Paul's MRI report that Paul was suffering from an ACL rupture. Dr Walker recommended that Paul undergo an ACL reconstruction.

35. Dr Orison Kim was the anaesthetist for Paul's surgery. A few days before surgery, Dr Kim telephoned each of the five patients who were on Dr Walker's list for 18 June 2015. During this call Dr Kim introduced himself, explained what their anaesthetic would involve, asked the patient for their relevant pre-anaesthetic medical history and obtained their consent to undergo anaesthesia. At the time Dr Kim recorded those details on a piece of paper. Dr Kim now uses an online questionnaire to record his initial pre-anaesthetic assessment.

36. Paul arrived at the Day Surgery Unit of the Hospital at around 10:30am on 18 June 2015. Alice Wong was with him and stayed until about 12:00pm.

37. When Dr Kim arrived at the operating theatre that day, he discussed the anaesthetic requirements of each patient on the list for the day with the anaesthetic nurse. The "Theatre List" page on TrakCare, which was the homepage for Dr Kim as an anaesthetist, showed all patients listed for surgery that day, organised by theatre.

38. Paul was originally the fifth in the order of five patients on Dr Walker's surgery list that day. During the surgery of the second patient, Dr Walker asked if the order of patients could be changed so that patient "GS" could be moved to the end of the list. Dr Kim asked RN Nadia Zora, the anaesthetic nurse, to leave the operating theatre to ascertain if this was possible. RN Zora returned a few minutes later, indicated that it was possible, and that the next patient ("RH") had arrived. As a consequence of this change, Paul became the fourth patient on the list, and GS the fifth and final patient. It was not uncommon for the order of patients to be changed at the request of the surgeon.

39. Paul was brought from the Day Surgery Unit to the Anaesthetic Bay at 11:51am. Dr Kim's practice was to see each patient when they were brought to the Anaesthetic Bay by nursing staff to introduce himself, verify the pre-anaesthetic history, confirm their identity and confirm their fitness to undergo anaesthesia. It is part of standard pre-anaesthetic practice to make a record of all medications taken pre-operatively or to make a notation indicating that the patient does not take any regular medications. This information could be recorded in TrakCare in the "Pre Anaesthetic Assessment" action item under the heading "History". Dr Kim recorded "HTN", in reference to Paul having hypertension, but made no reference to whether Paul was taking any regular medications.

40. The anaesthetic nurse would also conduct a pre-operative check for a patient awaiting surgery on a computer located at the Anaesthetic Bay by logging onto the computer at the bay and clicking on the "Pre-Operative Checklist" for the

patient. RN Zora spoke to Paul in the Anaesthetic Bay and filled in the pre-operative checklist. This was entered into TrakCare by RN Zora at 11:52am. Sometime later, RN Zora was relieved by RN Radha Reddy. It was normal practice for the anaesthetic nurse in theatre to be relieved for a lunch break at around 12:00pm to 1:00pm. Dr Kim recalled the changeover occurring at the commencement of Paul's anaesthetic. RN Reddy had not worked with Dr Kim before.

41. Once a patient was taken into theatre, the nurse or anaesthetist would allocate the patient's location to the particular theatre on TrakCare. The various areas of the Hospital are displayed under the menu item "ward summary" on screen in TrakCare and it is necessary to 'move' patient's electronic file as they move through the various areas of the hospital. The anaesthetic nurse could access the patient record on the Anaesthetic Bay computer and, using a click and drag motion in TrakCare, 'move' the patient record from the Anaesthetic Bay to the theatre.

42. Once the patient's file was allocated to the theatre, their observations would be continuously fed into TrakCare and could be viewed by the anaesthetist from their workstation on monitor 1.[1] Each patient file is identified by the patient's name, date of birth and unique reference number ("URN"), which are shown at the top of the computer screen. For earlier operations that day, RN Zora had "moved" the relevant patient's file into the depicted theatre area on the computer at the Anaesthetic Bay as the patient was physically moved into theatre.

43. Paul's operation commenced at around 12:12pm.The ACL reconstruction included infiltrating the soft tissues around the wound from the hamstring harvest and portals of the knee with a local anaesthetic, Ropivacaine (Naropin). The amount of local anaesthetic used was 20ml of 0.75%. This dose was safe and appropriate to be administered intra-operatively.

44. Dr Walker's usual practice was to leave the charting of post-operative medications to the anaesthetist. It is standard practice for an anaesthetist to be responsible for post-operative management of pain, nausea, vomiting and intravenous fluids. Dr Walker did not tend to prescribe medications unless specifically requested to do so by nursing staff.

45. Dr Kim would usually chart medications the patient would require postoperatively during surgery, after the patient was anaesthetised and the operation had commenced. Using 'one touch' prescribing in TrakCare, Dr Kim charted Paul's pre-surgery sedative at 12:12pm and then his anaesthesia and an antibiotic at

[1] A photograph of the anaesthetist's workstation is Annexure I to the supplementary statement of Eliza Kenny dated 2 February 2018 (see Tab 36F, Volume 2, Exhibit 1).

12:20pm. Dr Kim then charted an antiemetic, a further antibiotic and anti-inflammatories between 12:26pm and 12:34pm, while Dr Walker was performing surgery These medications were charted using a combination of 'one touch' and long hand prescribing in TrakCare.[2]

46. Long hand prescribing required Dr Kim to select medications from a drop down box, type further information regarding the administration of the medication, click 'update' to add the medication to a 'shopping cart' on the right hand side of the screen and then enter his personal TrakCare passcode before clicking 'submit'.[3]

47. The post-operative medication charted between 12:26pm and 12:34pm (namely paracetamol, oxycodone and celecoxib) reflected Dr Kim's standard practice for patients similar to Mr Lau. The post-operative antiemetic and non-steroidal anti-inflammatory medications were routine and of appropriate doses.

48. Dr Kim stated that during Paul's operation he had trouble viewing Paul's observations in TrakCare. He stated he raised the issue with RN Radha Reddy who said she would move Paul's TrakCare file into the theatre area. This appeared to fix the problem. Audit logs suggest Paul's file was moved at 12:30pm and the "theatre in time" was retrospectively recorded as 12:15pm. From 12:30pm onwards, Paul's observations fed directly into TrakCare. Although Paul's observations couldn't initially be seen in TrakCare, they were visible to Dr Kim on monitors 2 and 3 of his workstation at all times while Paul was in theatre.

49. The procedure itself was uneventful, and took approximately 45 minutes. Paul left theatre at 1:21pm and arrived in Recovery at1:25pm. Dr Kim left theatre and accompanied Paul to Recovery to perform a handover to RN Tani Gao before returning for the fifth and final patient, GS.

Prescription error

50. The operation for patient GS started at around 1:25pm. Dr Kim correctly navigated to the TrakCare record of GS at the commencement of surgery and correctly charted intra-operative medications in her electronic record.

51. At 1:52pm, while Paul was in Recovery and Dr Kim was in theatre with patient GS, Dr Kim entered Paul's TrakCare chart to prescribe a small amount of fluids necessary to "keep the line open" for intravenous antibiotics. Dr Kim had omitted to chart the fluids during Paul's surgery and was either reminded or remembered during GS's operation. Dr Kim charted the fluids by navigating to the Theatre List

[2] The medications and methods of prescribing are set out in Annexure J to the supplementary statement of Eliza Kenny dated 2 February 2018 (see Tab 36F, Volume 2, Exhibit 1).
[3] This process is illustrated in Annexures H8 – H11 to the supplementary statement of Eliza Kenny dated 2 February 2018 (see Tab 36F, Volume 2, Exhibit 1).

homepage, selecting 'Paul Lau' from the list under Theatre 09, selecting the 'Flowsheet' menu item and then selecting the "Prescribing" action button. Dr Kim stated that he believed his attention was then drawn back to the clinical needs of GS.

52. At 1:55pm, Dr Kim began prescribing further medication in Paul's TrakCare record. Dr Kim stated that he had intended to chart the medication for GS. He did not realise that he still had Paul's TrakCare record open and accordingly failed to close Paul's file and open GS's patient file.

53. At 1:55pm, Dr Kim electronically ordered intravenous Fentanyl Infusion20mcg/1mL, 60mL ("the Fentanyl PCA") in Paul's chart intending to chart the medication for GS. At 2:00pm, Dr Kim electronically ordered a Fentanyl 100mcg/hour Transdermal Patch (Fentanyl patch), one patch every three days (total five patches) in Paul's chart, also intending to chart the medication for GS. While Dr Kim was prescribing medications on Paul's chart a series of alerts were triggered in TrakCare as follows:

    - After prescribing the first batch of eight medications intended for GS on Paul's chart at 1:55pm, 11 different alerts were trigged and presented in one batch;

    - After prescribing the second batch of two medications and an order of fluids intended for GS on Paul's chart at 1:59pm, 6 different alerts were trigged and presented in a batch; and

    - After prescribing the third batch of five medications intended for GS on Paul's chart at 2:00pm, 5 different alerts were trigged and presented in a batch.[4]

54. Those alerts were manually overridden in batches by Dr Kim. The alerts were defaulted to the tick for override. There was a blank field which could be used to record the reason for the override. Dr Kim populated the field by selecting "consultant's decision" from the drop-down menu of reasons. (see Annexure H13 by way of example).

55. During a Counselling Interview with the Medical Council of NSW ("the Medical Council") on 6 September 2016, Dr Kim admitted the prescribing error and admitted that he failed to recognise his prescribing error when he reviewed the patient on the ward post-operatively. The Medical Council determined that this was a major clinical management error, however no further action was taken. At

[4] The alerts are illustrated in Annexures H12, H16 and H20 to the supplementary statement of Eliza Kenny dated 2 February 2018 (see Tab 36F, Volume 2, Exhibit 1).

the time of the Medical Council of NSW proceedings, the precise nature of how the prescribing error occurred was unknown.

Medication dispensation

56. Ms Bui, the dispensing pharmacist, saw the order for a Fentanyl patch on Paul's TrakCare record. Ms Bui was aware that Dr Kim was an anaesthetist and that his normal practice was to electronically order medication during surgery.

57. Ms Bui allocated the Fentanyl patch for dispensing shortly after 2:00pm. Ms Bui was aware that the 100mcg patch was the strongest available Fentanyl patch. There was nothing in Paul's TrakCare record to suggest he had ever taken opioids before.

58. Ms Bui believed that the order for the Fentanyl patch would be reviewed by another pharmacist prior to being delivered to the ward and also by the medical team on the ward.

59. As the dispensing pharmacist, Ms Bui was required to do a review in accordance with the Pharmacy Dispensary Allocation, Dispensing and Pricing Policy to ensure that the medication prescribed was suitable for the patient. Ms Bui's normal practice was to do clinical reviews post-operatively and discuss any issues with the doctor. In her statement, Ms Bui said that she was reluctant to contact doctors while they were in theatre. She mistakenly believed that Paul was in surgery when the Fentanyl patch was charted.

60. Ms Bui affixed a medication label to the medication and recorded it in the Pharmacy Drug Register.

61. The Pharmacy Council of NSW ("the Pharmacy Council") determined on 3 August 2017 that Ms Bui failed to adequately assess the appropriateness of the dose of the Fentanyl patch for Mr Lau. The Pharmacy Council found that the medication order should have been confirmed with the anaesthetist as it was unusual for an opioid naïve patient to be prescribed the strongest dose of a Fentanyl patch and patches were not regularly prescribed for patients post operatively.

62. Ms Bui was found to have engaged in "unsatisfactory professional conduct" and was cautioned. Ms Bui did not contest this finding and chose not to give evidence during the inquest. She has expressed remorse for Paul's death.

63. Ms Hye Lim Chang, the clinical pharmacist, delivered the Fentanyl patch to Ward 1 and recorded the delivery of the patch in the Ward 1 Drug Register listing the patient's name, the drug form and strength and the date and time of receipt,

namely at 14.45. RN Velerie Tan co-signed the entry and the patch was locked in the Schedule 8 drug safe in her presence. Ms Chang's role was confined to the delivery of the Fentanyl patch, she did not conduct, and was not required to conduct, any review of the medication for suitability for the patient. Paul was still in the Recovery Unit at the time the Fentanyl patch was delivered to Ward 1.

Recovery

64. The Recovery ward is an open plan room with 10 bed bays. As noted above, Paul arrived in Recovery at 1:25pm. Dr Kim accompanied Paul to Recovery at the conclusion the procedure. Dr Kim handed Paul over to RN Tani Gao. RN Gao recorded the handover in the computer system.

65. At the time of handover, Dr Kim had charted the standard post-operative medication for Paul, being oral oxycodone 5-10mg every 4 hours as required, regular paracetamol and anti-inflammatories (Celebrex). This was Dr Kim's standard practice for a patient like Paul. RN Gao's notes record that Dr Kim told her that Paul had had an operation on his left knee for an ACL reconstruction under general anaesthetic.

66. The following note was recorded on Trakcare:

> "Arrival Time: 1325
> Operation: L/Knee ACL Reconstruction
> Type of Anaesthetic: GA Type of Airway
> LMA Time Airway Removed: 1330
> Type of Dressing: Bandage with ice pack applied
> IV Fluids: Patently running on L/arm
> Total Analgesia Given: PCA Pt self-admin
> Antiemetics Given: nil
> Nursing Report: uneventful recovery, Pt has medium pain on L/Knee, settled by self admin PCA Fentanyl. Neurovascular obs attended satisfactory. Pt has Hx of HTN well controlled. Nil nausea, obs stable. IVC running 40mls as KVO as per order. S/B Surgeon in PACU @ 1446."

67. The notes above were recorded at different times alongside pre-populated fields which were shown to the user making the record. There was no pre-populated field for plans for post-operative pain or analgesia. The recorded handover notes did not record any plan for analgesia in PACU or overnight. Dr Kim believed he communicated the plan to RN Gao. RN Gao cannot recall if the plan was outlined or if there was any mention of Fentanyl.

68. The reference to the Fentanyl PCA must have been recorded sometime after the handover. At the time of the handover Dr Kim had not yet charted any Fentanyl for Paul – that occurred at 1:55pm during the surgery of the patient GS. As noted

above, at the time of handover Dr Kim had only charted his standard post-operative medication for Paul.

69. RN Gao did not have a practice at this time of reviewing TrakCare records during handover. She focused her visual attention on the patient's airway while listening to the handover. She tended to check TrakCare rather than ask questions if an anaesthetist did not include a plan for post-operative pain management in the handover. She stated she now reviews TrakCare during handover if it is safe for the patient for her to do so.

70. Sally Sutherland-Fraser, an RN with over 30 years experience working in multidisciplinary healthcare teams, primarily in the perioperative environment, provided an expert report and two supplementary reports in this matter. RN Sutherland-Fraser also gave oral evidence during the inquest. RN Sutherland-Fraser stated that the handover between Dr Kim and RN Gao should have provided clearer and more complete communication including the post-operative medications planned for Paul. She noted that it was the responsibility of Dr Kim to provide the information and of RN Gao to clarify, ask for more detail and record the information.

71. The expert nursing report further stated that RN Gao should have confirmed the TrakCare charted medications with Dr Kim during handover. If this is not done at handover, Recovery nurses should check the medication orders while the patient is in Recovery, so that anything requiring clarification with the anaesthetist can be done so promptly.

72. Paul had no nausea in Recovery and his observations were stable. Paul was initially drowsy but he made an uneventful recovery, becoming alert and talking to RN Gao.

73. Sometime before 2:05pm, RN Gao took a 20 minute tea break. She left her computer logged into TrakCare. At 2:05pm RN Chung signed out a Fentanyl PCA from the ward stock of Recovery and connected the Fentanyl PCA for Paul's use. Her signature appears on the Ward Register of Drugs of Addiction. The signature of the second checker on the Ward Register of Drugs of Addiction belongs to RN Jessica Discombe. RN Chung believes she initiated the Fentanyl PCA because Paul had complained of pain rated at 7/10. RN Opal Feng is recorded on TrakCare as being the second checker of the initiation of the Fentanyl PCA.

74. RN Chung does not recall seeing an order for the Fentanyl patch and believes if she had seen the Fentanyl patch she would have raised concerns with RN Gao or Dr Kim. It is possible that the order for the Fentanyl patch arrived in TrakCare while RN Chung was at the Schedule 8 cupboard. The Fentanyl PCA was

ordered at 1:55pm, the Fentanyl patch was ordered at 2:00pm and the Schedule 8 register is signed by RN Chung and RN Discombe at 2:05pm. TrakCare does not have an alert system for when additional medications are placed on a patient's medication chart after the patient leaves theatre.

75. The Fentanyl PCA was sourced from ward stock rather than dispensed by the Pharmacy as the Pharmacy did not hold the Fentanyl syringes used for a Fentanyl PCA. Pharmacist Janice Lee allocated and reviewed the Fentanyl PCA order on TrakCare at around 2:06pm.

76. When RN Gao returned from her tea break, RN Chung did a handover with RN Gao. RN Chung told RN Gao that a Fentanyl PCA had been initiated for Paul. RN Chung explained that Paul had complained of pain and she had seen an order for a Fentanyl PCA on TrakCare for Paul. RN Gao checked with Paul to confirm that he knew how to operate the Fentanyl PCA. RN Gao believes she checked TrakCare to confirm that the Fentanyl PCA had been ordered but that she missed the order for the Fentanyl patch.

77. The expert nursing report stated that RN Gao should have clarified the Fentanyl PCA order with Dr Kim as he had not discussed an order for Fentanyl PCA during the clinical handover. The report also stated that RN Gao should have realised that Paul was an unlikely candidate for Fentanyl PCA given the minimally invasive nature of his surgical procedure. RN Gao accepted the conclusions of the expert nursing report and expressed remorse for Paul's death.

78. In the second supplementary expert nursing report, RN Sutherland-Fraser stated that RN Chung should have clarified the order for the Fentanyl PCA with RN Gao or Dr Kim before initiating it, given it had not been part of the handover between RN Gao and RN Chung. RN Chung accepted the conclusion of the second supplementary expert nursing report and expressed remorse for Paul's death.

79. At 2:46pm the surgeon, Dr Walker, attended and reviewed Paul. At that time, Paul was comfortable and in good spirits. Dr Walker discussed the surgery and confirmed for Paul what had been done during the procedure. Dr Walker advised that he would contact Paul by email to arrange a follow-up appointment. Dr Walker did not see Paul again and was not asked to review him again by nursing staff.

GS's surgery and medications

80. After handing over Paul's care in Recovery, Dr Kim returned to the operating theatre for the fifth and final patient on Dr Walker's list, GS. GS's anaesthesia commenced at 1:33pm.

81. GS was a challenging case. As noted above, Dr Kim believed he was charting GS's medication orders, including analgesia and her regular pre-hospital medications on her TrakCare medication chart but he was charting them on Paul's TrakCare file.

82. At the end of GS's procedure, Dr Kim accompanied her to Recovery and performed a handover. Dr Kim told RN Ravji Patel that GS had had a general anaesthetic and that she would be in some pain. Dr Kim asked RN Patel to administer up to another 200mcg of Fentanyl in divided doses as a loading dose and to start her Fentanyl PCA for post-operative pain. Dr Kim also told RN Patel that GS had chronic pain and that she was on a Fentanyl patch, which should also be recommenced.

83. It appears this clinical handover did not involve a review of the medication summary on TrakCare for GS, as the absence of charted medication was not detected. GS was allocated a post-operative bed on TrakCare by RN Patel at 3:08pm.

84. Dr Kim then left to see patients at Westmead Private Hospital. On the way to Westmead, he received a telephone call from RN Patel to the effect that GS's TrakCare file did not contain any medication orders. Dr Kim assumed he had closed GS's electronic patient file incorrectly and TrakCare had not saved the medication orders.

85. Professor Ross MacPherson, Senior Staff Specialist, Department of Anaesthesia and Pain Management at Royal North Shore Hospital, provided an expert report and three supplementary reports in this matter. Professor MacPherson also gave oral evidence during the inquest. The expert report of Professor MacPherson stated that this phone call should have alerted Dr Kim to the possibility that the medication had been incorrectly charted for another patient.

86. Dr Kim indicated to RN Patel and another nurse the fairly lengthy list of medications for GS and suggested they get the CMO (Career Medical Officer) to telephone him so that GS's medications could be accurately charted. From 3:24pm to 3:31pm, Dr Batman charted medication for GS in TrakCare.

87. Dr Kim saw his patients at Westmead and then returned to the Hospital at approximately 7:30pm. Dr Kim stated that this was because he had not been contacted by the CMO and he wanted to ensure that GS's medications had been charted accurately.

88. At the Hospital, Dr Kim attended GS and checked her medications were properly charted in the electronic medication chart. It appeared that they were except for one, which Dr Kim added at 7:37pm. Dr Kim then saw Paul.

Admission to Ward 1

89. At around 3:00pm, Paul was transferred to Room 301 on Ward 1. He was awake and chatted to Alice Wong. He did not complain of significant pain to Ms Wong and said "I feel fine just a little bit of pain." His patient file was "moved" to Ward 1 on TrakCare at 3:12pm.

90. RN Gao conducted a clinical handover with RN Olivia Villanueva, who was rostered on for the evening shift on Ward 1, at about 3:00pm. In that handover, RN Gao told RN Villanueva the surgery that Paul had undergone, that his vital signs were stable and that he had a history of hypertension. The nurses did not consult TrakCare during the handover. Paul's details were not recorded on the Ward 1 clinical handover sheet until 6:00pm and the Fentanyl PCA was not recorded on the sheet at all.

91. The expert nursing report stated that both RN Gao and RN Villanueva should have reviewed the post-operative medications prescribed in TrakCare for Paul as part of the clinical handover. It further stated that the prescription of both the Fentanyl PCA and Fentanyl patch for Paul should have alerted nurses of their experience to the need to clarify the medication order with the anaesthetist as the order was very unusual for a patient in Paul's circumstances.

92. RN Villanueva was the primary care nurse for Paul on Ward 1 during the evening shift from about 3:00pm. She carried out routine clinical assessments and observations, including neuro-vascular and pain assessments. At this stage, Paul was receiving intravenous fluids via a cannula inserted into his left hand. Paul was also using the Fentanyl PCA for pain relief.

93. RN Villanueva explained to Paul that she would be assessing him hourly for the first six hours and then every 2 hours thereafter. This was consistent with the Hospital's Patient Controlled Analgesia (PCA) – Adult Policy. Paul's left knee was wrapped in a clean crepe bandage and an ice pack was sitting on top of it. RN Villanueva asked him if he was on any regular medication and whether he had brought it with him. Paul said he was on regular Karvea for hypertension and his wife would bring it into hospital. RN Villanueva asked Paul if he was allergic to anything and he said "no". RN Villanueva advised Paul how to use his nurse call buzzer and ensured his PCA handset was within reach.

94. RN Villanueva then completed her nursing notes for Paul on TrakCare and reviewed medications prescribed for him. She noted that Paul had two orders of Cephazolin and Paracetamol on his chart. RN Villanueva stated that she telephoned Dr Kim to confirm the medication order and was advised to cease the duplicate Paracetamol order. A note of RN Villanueva's conversation with Dr Kim

is recorded on TraKCare at 4:04pm and one of each of the orders for Cephazolin and Paracetamol are recorded on Paul's chart as being 'discontinued' at 5:52pm and 5:53pm.

95. Professor MacPherson stated that Dr Kim should have been alerted by this call to the fact that the medications had possibly been prescribed by others and stated that Dr Kim should have made enquiries as to why the medication was prescribed and by whom. Professor MacPherson further stated that the fact that this was the second call Dr Kim received – one relating to missing medication orders and the other relating to duplicate medication orders – should also have alerted Dr Kim to the possibility of a prescribing error and caused him to make further enquiries of a medical officer or attend the Hospital.

96. RN Villanueva returned to the medication chart and observed that Paul was charted a Fentanyl patch (100mcgs). She stated that she telephoned Recovery and spoke to RN Gao to confirm whether the Pharmacy had dispensed the Fentanyl patch to Recovery. RN Villanueva stated that RN Gao informed her that the Pharmacy would dispense the Fentanyl patch to the ward. RN Gao stated that she did not speak to a ward nurse after the clinical handover at 3:00pm or give any instructions in relation to the use of a Fentanyl patch.

97. The expert nursing report stated that RN Villanueva should have clarified the TrakCare order for the Fentanyl PCA and the Fentanyl patch with Dr Kim as she had already identified an anomaly with the antibiotics and analgesia. Furthermore, the Fentanyl patch was a second mode of delivery for a high-risk medication placing Paul at risk of over-sedation. According to the expert report, RN Villanueva should have confirmed the order and been prepared to initiate more frequent clinical observations regardless of confirmation because of the risk of over-sedation.

98. At about 4:00pm, Paul complained of pain in his knee and rated it 7 out of 10. RN Villanueva encouraged him to press the PCA button. She also assisted him to reposition his body in his bed and she installed a monkey bar so he could reposition himself. RN Villanueva applied a compression device to his right leg and reapplied an ice pack on his left knee.

99. RN Villanueva returned to the nurses' station and telephoned the Pharmacy to enquire whether they had dispensed the Fentanyl patch. The person she spoke with confirmed that the patch had been dispensed and that it was locked in the Schedule 8 drug cupboard on RN Villanueva's ward.

100. At the time, the Macquarie University Hospital "Patient Controlled Analgesia (PCA) – Adult" Policy stated:

> Supplementary sedatives and/or opioids must not be administered while PCA is in progress unless authorized by medical officer, anaesthetist, intensivist or their registrars as these medications can lead to over sedation and respiratory distress.

101. Importantly, Professor MacPherson stated in his expert report that "the moment that any other opioid is prescribed with a PCA device the risk of adverse effects increases considerably".

102. RN Villanueva stated in disciplinary proceedings before the Nursing and Midwifery Council of NSW ("Nursing and Midwifery Council") that she did not question the order for the Fentanyl patch as she was aware of another medical practitioner on the orthopaedic ward who used pain medication patches (although not Fentanyl patches) in conjunction with patient controlled analgesia for pain management. Additionally, Paul was continuing to experience pain even though he was using Fentanyl PCA. During the inquest, RN Villanueva gave candid and helpful evidence. She acknowledged that her opioid knowledge at the time was inadequate and accepted that she should have questioned the prescription for the Fentanyl patch.

103. Before 5:00pm, RN Villanueva asked RN Velerie Tan to check the Fentanyl patch with her. The process required that two nurses check the medication order, as prescribed by the medical officer, against Paul's TrakCare record.

104. RN Villanueva and RN Tan went to the medication room which contained the locked drug cupboard. RN Villanueva showed RN Tan the medication order and RN Tan checked the drug. RN Tan removed the Fentanyl patch from the locked drug cupboard and rechecked the medication order with RN Villanueva to confirm that the medication was correctly charted for Paul. Both the nurses signed for the Fentanyl patch.

105. Both nurses then went to Paul's room, where the medication order was checked again. RN Tan asked Paul to state his name and date of birth, confirmed that Paul had no drug allergies and checked his patient identification number on his wrist band.

106. At 4:58pm RN Villanueva applied the patch on Paul's upper right arm and marked the date as 18/6/2015. RN Tan signed off on TrakCare that the drug had been administered. RN Villanueva said in oral evidence that she administered the Fentanyl patch instead of the oral analgesia which was also prescribed for Paul as she was focused on the danger of combining oral opioids with a Fentanyl PCA. RN Villanueva didn't appreciate or turn her mind to the danger of combining a Fentanyl patch with a Fentanyl PCA. She accepts that this was a serious mistake.

107. RN Sutherland-Fraser's report stated that RN Villanueva and RN Tan (as the second checker) displayed a lack of knowledge regarding high-risk medications and a limited capacity for critical thinking by failing to recognise the potential effects and consequences of such a large volume of Fentanyl in Paul's system following a general anaesthetic. The report further stated that knowledge of the standard dosing range and routes of administration of Fentanyl should have prompted RN Villanueva and RN Tan to consult a reputable pharmacology resource or clarify the order with Dr Kim. Both RN Villanueva and RN Tan accepted the conclusions of the expert nursing report

108. In disciplinary proceedings before the Nursing and Midwifery Council, both RN Villanueva and RN Tan accepted that they should have independently questioned the medication order, including the correct dosage and interaction with current medications. Both RN Villanueva and RN Tan are very remorseful for their mistakes and have appropriately used the experience to improve their nursing practice.

Dr Kim visits Paul in Ward 1

109. After Dr Kim returned to the Hospital at approximately 7:30pm, he checked GS's medications and charted an additional medication at 7:37pm. Dr Kim then quickly attended the four other patients who had been on the list that day, including Paul. Paul introduced Alice and explained to Dr Kim that he was just getting on top of the pain in his knee. Paul said that initially he had been in quite a lot of pain (7/10) when he had woken after surgery, but that it had gradually improved to 6/10 and was now 5/10. Dr Kim noticed that Paul had a Fentanyl patch on his right arm and asked him why he was using it. Paul told Dr Kim it was for his knee pain. Dr Kim then noticed a PCA machine next to Paul as well**.**

110. Dr Kim assumed Paul had been on a Fentanyl patch pre-operatively for his chronic knee pain, which accounted for his difficulty in getting on top of the pain post-operatively and the need for the PCA. There was no record of Paul being on any pre-operative medication for his pain. Dr Kim assumed someone else (such as Dr Walker or the CMO) had prescribed the Fentanyl PCA for Paul. Dr Kim did not check, or ask a nurse to check, Paul's TrakCare record to confirm who had prescribed the two new medications.

111. Dr Kim agreed in his oral evidence that the dosage of the Fentanyl patch was written on the Fentanyl patch and would have been easily readable if he had leaned down to check it, but he did not. Dr Kim further agreed that if he had seen the extremely powerful dosage of 100mcg/hour being worn by Paul, who was opioid naïve, he would have known that there was no possibility it had

been prescribed by another medical practitioner because it would have been a highly inappropriate medication for an opioid naïve patient experiencing acute pain.

112. The expert report of Professor MacPherson stated that Dr Kim should not have made the assumptions that he made during this time. Dr Kim should have been aware of, and recorded, the regular medication Paul was taking during the pre-operative assessment. The report further states that Dr Kim should have been alert to the sudden appearance of two drugs after surgery which the patient was not taking prior to admission and made further enquiries about why they had been prescribed and by whom.

113. Professor MacPherson said in his oral evidence that it would have been appropriate and necessary for Dr Kim to check the dosage of the patch and to ask Paul if he had any prior history of using Fentanyl patches. Professor MacPherson also stated that proper practice would demand that Dr Kim check the patient's medical records and ensure that the medications were appropriate for his patient if he believed that they had been prescribed by another doctor. In this case, any one of those inquiries would have alerted Dr Kim to his prescribing error.

114. When asked about the action that should have been taken if the prescribing error was discovered, Professor MacPherson stated that, at that point, immediate steps should have been taken to remove the Fentanyl patch and determine the appropriate method of treating any adverse effects.

115. The Medical Council found that Dr Kim failed to recognise his prescribing error when reviewing Paul on the ward. The Medical Council also counselled Dr Kim in relation to his general practices surrounding communication and consultation with other treating doctors, and his post-operative assessment of patients.

116. In a supplementary statement dated 22 January 2018, Dr Kim has accepted that he should not have made the assumptions he made and accepted that he should have made enquiries with Paul and with other Hospital staff to determine why Paul had been given a Fentanyl patch and Fentanyl PCA. Dr Kim has expressed remorse for Paul's death.

117. During the evening of 18 June 2015, RN Villanueva administered Paul his regular medication as charted in TrakCare.

118. The expert nursing report noted that RN Villanueva did not increase the frequency of Paul's observations despite Paul receiving high doses of opiates. The expert report also noted that RN Villanueva may not have considered the

different rates of drug release and the implications of this on the increasing dose of Fentanyl that Paul was receiving.

Shift changeover

119. At about 10:00pm, RN Sandy Perez, Team Leader for the night shift, said that she would receive bedside handover for all patients. RN Perez was the nurse team leader in charge of the night shift. RN Perez asked RN Kelly Jin to attend to nursing care plans because she was aware that TrakCare would be going off line and accordingly be unavailable between 10:45pm and 11:55pm. AIN Teneka Murdoch was not present for the handover.

120. RN Villanueva informed RN Perez that Paul had had a left knee ACL reconstruction and that he had a PCA. RN Perez went back to the nurse's station and informed RN Jin that Paul had PCA, as it had not been recorded on the handover sheet. Despite this, Paul's Fentanyl PCA was not recorded on the Ward 1 clinical handover sheets. RN Perez asked RN Jin to plan two hourly observations for Paul.

121. RN Perez and RN Villanueva went to Paul's room. Paul was alert and oriented. Alice was present. RN Perez and RN Villanueva checked the dressing on Paul's left knee, his Fentanyl PCA log and IV fluids. He had good movement and sensation with his knee. The nurses told Paul they would check on him every 2 hours. He said in a joking manner "why not hourly?" and they left the room.

122. RN Perez stated that RN Villanueva told her, or said in her hearing at the handover in Room 301, that Paul had a patch on his arm. RN Villanueva stated that she showed RN Perez the location of Paul's Fentanyl patch on his right upper arm. RN Perez knew that the patch was a Fentanyl patch (either from the clinical handover sheet or from RN Villanueva's verbal handover), but did not ask the dosage.

123. The expert nursing report stated that RN Perez should have taken steps to ascertain the active ingredient and dosage of the "patch", as this was an important piece of information. The information was necessary to make appropriate care plans or make safe delegations to the nurses she was leading on the shift.

124. RN Perez then received a whole ward handover in the medication room from Maricris De Los Santos, RN, who was the team leader for the afternoon shift. RN De Los Santos said Paul was a routine ACL post-operative patient.

125. The expert nursing report stated that RN Perez should have been alert to the risk of over sedation. It further stated that, as nurse in charge, RN Perez had the experience and capacity to identify the anomaly in Paul's pain management and act on it. RN Perez accepted the conclusions of the expert nursing report and expressed remorse for Paul's death.

126. While she was attending to the patient care plans, RN Jin asked AIN Murdoch to attend to patients' observations, including Paul's. RN Jin informed AIN Murdoch that Paul's observations were due and that he was to have two hourly observations overnight. RN Jin did not inform AIN Murdoch of Paul's Fentanyl patch because RN Jin was not aware of it. RN Jin was focused on working out when each patient's observations were due and had not checked Paul's medication chart on TrakCare or noticed the Fentanyl patch on Paul's handover record.

127. Professor MacPherson observed that the reason that patient controlled analgesia devices are relatively safe is due to constant monitoring by nursing staff. The most important form of monitoring is the sedation score, as increasing sedation is the first sign of opioid overdose or toxicity.

128. At about 10:20pm, AIN Murdoch went into Paul's room for his two hourly PCA vital sign observations. This was the first time AIN Murdoch saw Paul. AIN Murdoch did not enter notes on TrakCare as she believed it was down but reported to RN Jin that Paul's observations were within normal range.

129. Alice went home at between 11:00pm and 11:30pm. She smiled and waved as she passed the nurses' station, and AIN Murdoch took from that that Paul was still okay.

130. Around 11:20pm, AIN Murdoch was required to do a visual check of Paul's respiration by observing the rise and fall of Paul's chest. This check is required hourly overnight in addition to regular scheduled observations. This check was not done. RN Jin had not discussed the requirement to conduct an hourly visual respiration check with AIN Murdoch, as AIN Murdoch had worked on the ward for some time and RN Jin believed AIN Murdoch was aware that she was required to conduct such checks. AIN Murdoch had a general practice of conducting hourly visual checks on the Ward where possible but she was not aware it was a requirement.

131. At 11:38pm, IT staff informed the Afterhours Manager by email that TrakCare was available. The Afterhours Manager was responsible for informing ward staff. Shortly after this, AIN Murdoch spent a few minutes entering measurements and observations into TrakCare and then commenced the next round of observations.

Deterioration and resuscitation attempts

132. At about 12:20am on 19 June 2015, AIN Murdoch entered Paul's room for his next two hourly observations. The lights were off and the curtain was drawn, which AIN Murdoch assumed was to block out hallway light. Paul was lying in his bed, which was tilted upwards at a 40 degree angle. She called him by name and he did not respond. She moved to his left hand side and gently nudged his arm. He opened his eyes twice, looked at her and closed them. AIN Murdoch then read Paul's vital signs. She thought Paul was asleep while she took them. The observations were recorded on paper rather than directly into TrakCare which contained parameters for escalation. The observations (which were retrospectively documented) were within normal parameters except for the diastolic blood pressure which was lower than the normal range. AIN Murdoch moved the Fentanyl PCA button away from Paul's hand because he was so drowsy.

133. As AIN Murdoch was leaving Paul's room, she had a 'gut feeling' that something may be wrong. AIN Murdoch then stopped and listened to Paul's breathing for 2 – 3 minutes. She noticed that his breathing "seemed a little off": he was breathing normally for a while and then his breaths became very shallow for approximately 10 seconds. AIN Murdoch recorded this as "moments of apnoea" lasting around 10 seconds in the nurse's retrospective note in TrakCare, but accepts she used the wrong expression as Paul's breathing did not cease but became shallow. Paul then took in a deep gasp of air accompanied by what sounded like snoring, before returning to a normal breathing pattern.

134. AIN Murdoch initially thought Paul may be exhibiting signs of sleep apnoea. She checked his history on TrakCare and saw no record of sleep apnoea, but saw the record of hypertension and that he was an ex-smoker.

135. Paul was in fact showing signs of over-sedation and his presentation was that of a deteriorating patient who needed immediate medical attention to avert a respiratory arrest. The nursing expert report stated that AIN Murdoch failed to recognise and adequately respond to this urgent situation. AIN Murdoch accepted the conclusions of the expert nursing report and expressed remorse for Paul's death.

136. At approximately 12:30am on 19 June 2015, AIN Murdoch approached RN Jin, who was performing a Schedule 8 medication check with RN Perez, and asked whether Paul had any specific medical history or sleep apnoea. RN Jin said something to the effect, "I'm not sure, why do you want to know?" or "I'm not sure, I don't have my handover sheet with me". AIN Murdoch told RN Jin that

Paul had shallow breathing. AIN Murdoch also recalls saying "his breathing rhythm seemed a little odd, but all other observations were fine. He was only responsive to voice and light stimuli", however RN Jin states that AIN Murdoch did not mention any other clinical symptoms. RN Jin told AIN Murdoch to adjust Paul's oxygen face mask and to adjust the oxygen flow to 6 litres (from 2 litres).

137. AIN Murdoch said, "I have a strange feeling. I'm probably being paranoid but can you come and take a look at him?" RN Jin told AIN Murdoch that she would review Paul after she had administered the pain medication. RN Perez did not hear the conversation between AIN Murdoch and RN Jin as she was focused on her patient who, in addition to being in pain, had dislodged their cannula and was bleeding. At this point AIN Murdoch estimates she had been away from Paul's room for about two minutes.

138. AIN Murdoch recorded the following progress note retrospectively on TrakCare at 2:07am:

> "At approx. 0025hrs, I entered pt's room to check routine 2/24 vital signs. Readings were as follows; Temp: 36.5, HR: 94, BP: 101/52, RR:18 and O2 sats: 95-97%2LNP. Whilst doing obs, I noticed his breathing was very shallow and he had brief moments of apnoea, lasting around 10 seconds at a time. I looked at his medical history for any signs of sleep apnoea and asked RN Kelly Jin if she knew. After telling her about his shallow breathing, I was told to change him to a 6L Hudson mask and see if he improves and that she would be in to assess him shortly as she was administering S8 medication...."

139. The expert nursing report stated that RN Jin should have recognised that Paul's increasing need for oxygen was a clear sign of deterioration and that AIN Murdoch's questions indicated imminent danger. The report stated RN Jin should have checked on Paul without delay. It further states that RN Jin should have asked more questions of AIN Murdoch about Paul's symptoms. RN Jin accepted the conclusions of the expert nursing report and expressed remorse for Paul's death.

140. The expert reports of both Professor MacPherson and RN Sutherland-Fraser noted that administering Schedule 8 medication is important, but the deteriorating patient was a higher priority.

141. When AIN Murdoch returned to Paul's room he looked sweaty, had stopped the snoring/gasp pattern and his breathing pattern was continuously shallow. She attached the observations machine that she had taken with her to Paul's right arm. She nudged Paul and called his name. Paul did not respond. She started the observations machine and felt for a radial pulse. His fingers were cold and she could not feel a pulse.

142. AIN Murdoch turned on the main light and pressed the staff assist button. She also called RN Pham, who earlier had entered the room next door. AIN Murdoch saw that the blood pressure, heart rate and oxygen saturation records on the observations machine had no readings. She felt for a carotid pulse and felt a faint pulse. She began doing a hard sternal rub on Paul's chest, keeping her finger on his neck. RN Pham came in about six to eight seconds after AIN Murdoch had pressed the staff assist button. AIN Murdoch accepted that at this point she should have pressed the Code Blue alarm instead of the staff assist button.

143. AIN Murdoch said to RN Pham, "he has stopped breathing, I no longer feel a pulse (as of a few seconds ago) and he is unresponsive". RN Pham observed that Paul had the Hudson mask on his face, was very pale and that his leg was pale and blue. He felt warm but RN Pham could not find a pulse. RN Pham started doing chest compressions. AIN Murdoch pressed the Code Blue alarm at 12:38am.

144. RN Cobus Swanepoel and RN Varinder Sidhu responded to the Code Blue within a minute. RN Sidhi started chest compressions. When RN Swanepoel tried to open an airway, he noted that Paul was wearing a patch, but did not know the active ingredient. The Code Blue team (Dr Sivaratnam, then Dr Tan and RN Ho) arrived shortly after. RN Ho applied the defibrillator pads to Paul's chest and checked his cardiac rhythm. The first rhythm was asystole (non-shockable). One of the team asked RN Perez about Paul's medical history. Resuscitation continued for seven cycles of CPR.

145. During the attempt to resuscitate Paul, Dr Tan inserted an endotracheal tube, however Paul vomited large amounts of gastric contents into the tube. Dr Tan decided to abandon intubation because the airway was impossible to clear. Attempts at ventilation continued with a manual resuscitation bag. At 12:56am Dr Tan pronounced life extinct.

146. Professor MacPherson noted that the resuscitation team failed to associate the large doses of opioids that Mr Lau was receiving and his subsequent deterioration. As a result, no opioid antagonist such as Naloxone was administered. Professor MacPherson noted that it was difficult to hypothesise as to whether such treatment could have prevented Mr Lau's death at that stage.

Professional complaints

147. On 3 September 2015, Carmel Kennedy, Director of Clinical Services at the Hospital made a mandatory notification to the Australian Health Practitioners

Regulation Agency ("AHPRA") in relation to the conduct of pharmacist Diana Bui, RN Velerie Tan and RN Olivia Villanueva. The notifications were referred to the Health Care Complaints Commission ("HCCC") for assessment on 8 September 2015.

148. On 8 September 2015, Dr Patrick McNeil made a mandatory notification to APHRA in relation to the conduct of Dr Kim. This notification was also referred to the HCCC for assessment.

149. The HCCC decided to take further action in relation to each of the notifications concerning Dr Kim, Ms Bui, RN Villanueva and RN Tan, and referred them to their various professional bodies.

150. During the course of the assessment of the various notifications made, the HCCC also reviewed the conduct of RN Tani Gao. The HCCC decided to take no further action in relation to RN Gao.

Consideration of the Issues

How and why Paul Lau was erroneously prescribed medication including a Fentanyl Patch and a Fentanyl PCA on 18 June 2015.

151. I am satisfied that the most likely explanation for how the prescribing error occurred is that at 1:52pm on 18 June 2015, Dr Kim opened Paul's TrakCare record to prescribe a small amount of fluids, which he had forgotten to prescribe during Paul's surgery. Dr Kim then failed to close Paul's TrakCare record and open GS's TrakCare record before prescribing post-operative medications for GS at 1:55pm.

152. The reason that Dr Kim failed to close Paul's TrakCare record and open GS's record is not known. It may be, as Dr Kim suggested, that he was distracted by the clinical needs of GS. I cannot determine this with any certainty.

153. It is clear that Dr Kim failed to exercise proper care, diligence and caution whilst prescribing medication erroneously in Paul's TrakCare record from 1:55pm to 2:00pm. Dr Kim accepted that a patient's name is displayed on screen in TrakCare at all times and that he overrode 22 alerts presented in three batches whilst prescribing, selecting "consultant's decision" and entering his password each time. Dr Kim accepted that he bears primary responsibility for the error.

Did the introduction of the TrakCare electronic medical record system to Macquarie University Hospital cause or contribute to the death of Paul Lau?

154. As Professor MacPherson noted in his expert report, there are benefits to electronic medical records, however the introduction of e-prescribing presents new risks and challenges. Whilst TrakCare did not cause Paul's death, the initial prescription error was made easier due to a function of TrakCare of great utility – the ability to open and close different patient records from a single terminal. Prior to the introduction of electronic medical records, it was much more difficult to chart medication on the wrong patient file.

155. Dr Kim gave evidence that he believed he was not provided with sufficient training in TrakCare. The Hospital had a responsibility to ensure that Dr Kim was properly trained, and there may have been some deficiencies with that training. However Dr Kim also had a responsibility to ensure that he felt confident enough using TrakCare to properly carry out his duties and to raise his concerns with the Hospital if he felt the training was inadequate. I note that none of the nurses who gave evidence indicated that they were uncomfortable using TrakCare or that they had received insufficient training in TrakCare.

Why the prescribing error was not detected during the remainder of Paul Lau's care at the Macquarie University Hospital from 18 to 19 June 2015.

156. The main reason for the failure to detect the prescribing error prior to Paul's death was the persistent failure of critical thinking by those involved in the care and treatment of Paul. This was compounded by the systemic deficiencies in nursing care identified by RN Sutherland-Fraser.

157. Dr Kim failed to notice the prescribing error despite the alerts triggered in TrakCare. He did not pay proper attention to the content of the alerts before overriding them, a practice that Dr Kim has accepted is not safe. Dr Kim also failed to connect the two phone calls he received from Hospital nurses regarding the absence of medication on GS's chart and the duplicate order of paracetamol and antibiotics on Paul's chart. Dr Kim accepted that when the duplicate order was identified, proper safe practice would have been to request the entire medication order be read to him.

158. The most serious failure of critical thinking occurred when Dr Kim returned to the Hospital on the evening of 18 June 2015. Dr Kim saw Paul receiving pain relief via a Fentanyl PCA and wearing a Fentanyl patch, neither of which he prescribed for Paul. Instead of making the necessary and appropriate enquiries regarding the dosage and who prescribed the medication, Dr Kim made a series of untenable assumptions. Dr Kim accepted that the assumptions had no

foundation, were unsafe and that he failed to exercise due diligence, care and skill.

159. In the Pharmacy, Ms Bui, the dispensing pharmacist, failed to adequately assess the appropriateness of the Fentanyl patch for Paul, particularly having regard to the fact that an opioid naïve patient had been prescribed the strongest dose and the fact that Fentanyl patches were not regularly prescribed for postoperative pain.

160. A similar absence of critical thinking was displayed by the nursing staff. The Recovery nurses did not question the order for the Fentanyl PCA, despite the Fentanyl PCA not being discussed during handover. The Ward 1 nurses did not assess whether the Fentanyl patch was appropriate medication for a patient in Paul's circumstances and did not adjust their practices to reflect the risks posed once the Fentanyl patch was administered.

Were any of the deficiencies in nursing care identified by RN Sally Sutherland-Fraser caused by systemic issues?

Handover Practices

161. Over the course of the inquest, a number of deficiencies in handover practices in Recovery and Ward 1 were identified.

162. Firstly, it was not common practice for nurses to refer to TrakCare at handover. RN Gao gave evidence that during a handover with an anaesthetist in Recovery, she focused on the patient's airway and she would go to the computer and review the patient's TrakCare record later. Both RN Villanueva and RN Perez gave evidence that they did not always refer to TrakCare during bedside handovers. This partly depended on whether there was an available mobile computer.

163. Additionally, RN Gao gave evidence that the plan for post-operative pain management was not always discussed during handover in Recovery and that, if it was not discussed, she tended to rely on the TrakCare rather than question the anaesthetist.

164. Poor handover practices in Recovery resulted in missed opportunities to detect the prescription error. Poor handover practices, including a lack of emphasis on the increased risks posed by Paul receiving opioids via two modes of delivery, resulted in a series of poor decisions about task delegation during the night shift.

165. RN Sutherland-Fraser described good handover practices as the foundation of good patient care. She gave evidence that handovers needed to be a dynamic and interactive process with clear and complete communication between practitioners.

Opioid Awareness

166. A lack of opioid awareness was demonstrated by nurses in both Recovery and on Ward 1. None of the Recovery nurses involved in Paul's care realised that a Fentanyl PCA was an unlikely medication order for Paul given the minimally invasive nature of his surgery.

167. Ward 1 nurses, RN Villanueva and RN Tan, who administered and checked the Fentanyl patch, had sufficient opioid awareness to properly understand the risks posed by the Fentanyl patch, or how unusual such a medication order was for an opioid naïve patient undergoing a routine ACL reconstruction surgery.

168. RN Perez also lacked awareness of the risks posed by Paul receiving opioids via dual modes of delivery and accordingly, her patient allocation decisions were not based on a proper risk assessment.

169. This lack of awareness amongst the nurses on Ward 1 resulted both in Paul being administered the Fentanyl patch (which was of the highest possible dosage) when he complained of pain and a failure to closely monitor Paul for over-sedation.

Observations

170. A rote, rather than critical, approach to patient observations was displayed throughout Paul's care. The Ward 1 nurses should have initiated more frequent clinical observations than were required by the Hospital's Patient Controlled Analgesia (PCA) – Adult" policy, given Paul was receiving opioids via two modes of delivery and therefore had an increased risk of over-sedation.

171. Paul's observations should not have been allocated to AIN Murdoch, a junior member of staff with insufficient expertise to monitor a patient receiving Paul's level of opioids, if this could have been avoided. If not, AIN Murdoch should at least have been told of the need to conduct hourly visual respiration checks and the need to closely monitor Paul's level of sedation. When Paul began to deteriorate, AIN Murdoch and RN Jin did not recognise the seriousness of the emergency and needed to act more quickly.

What steps have been taken by the interested parties to reduce or prevent the risk of prescribing errors at Macquarie University Hospital (or otherwise in their practice)

172. Since Paul's death, the Hospital has taken a number of important steps to reduce the risks of prescription errors and to improve clinical practices, which are set out in detail in exhibit 12.

173. These steps included a number of functionality improvements to TrakCare such as:

- The patient's name banner changing from red to green when the patient is connected to a continuous monitoring device in the operating theatres;

- Enabling the prescriber to see all the patient's current medications, including medications submitted by the prescriber, on the one screen; and

- The addition of alerts triggered when prescribing, addressing or administering opioid transdermal patches.

174. The Hospital amended a number of policies to reflect lessons learned from Paul's death, including:

- The amendment of the Patient Controlled Analgesia (PCA) – Adult" policy to require the prescriber to specifically record whether other prescribed medication may or may not be given whilst the patient is receiving pain relief via a PCA. If the prescriber has not made such a record, the nurse must contact the prescriber before administering further medication;

- The amendment of the Schedule 8 and Schedule 4D Medication Handling policy and the Medication Storage & Administration policy to require the nurse acting as the 'second checker' to independently consider the appropriateness of the medication prescribed; and

- The amendment of the Clinical Handover policy to require the electronic medical record to be opened during handover.

175. The Hospital also implemented significant training targeting handover practices and opioid awareness amongst nurses. This training has been reinforced by the

introduction of a handover audit tool and an increase in the number of computers available for nurses to use during handover.

176. RN Anne Scott, Nurse Manager, Workforce and Leadership, at the Hospital gave evidence that there have been significant improvements to handover practices on Ward 1 since June 2015. She confirmed that regular audits were conducted by the Nursing Unit Manager, Afterhours manager and nurse educators to ensure that proper handovers, following the SHARED[5] mnemonic were being conducted. The Hospital confirmed improved compliance with handover policy had also been demonstrated in Recovery.

177. Finally, the Hospital noted that the roles of Director of Anaesthetics, Director of Medical Services, and Patient Safety and Quality Manager had been created to better oversee training and education within the Hospital.

178. The Pharmacy has also taken steps to improve patient safety. Additional training has been conducted both in-house and by external providers regarding pain management medication. The Pharmacy also introduced a "Speak Up" campaign to encourage pharmacists to ask questions if they have concerns with respect to prescribed medications and to education themselves about patient conditions and treatment plans.

179. At an individual level, Dr Kim has introduced an online questionnaire which is completed by his patients in advance of their surgery to record their pre-anaesthetic history in detail. RN Villanueva and RN Tan both completed additional training in relation to pain management as part of their performance management plans.

Recommendations

180. Over the course of the inquest, current staff at the Hospital and the expert witnesses were asked to suggest and comment on possible reforms to improve patient care and safety. Although the Hospital has taken numerous steps to address the systematic issues which contributed to Paul's death, I am of the view that there remains a need for recommendations. I note that in closing submissions on behalf of the Hospital, Ms Richardson SC indicated that the Hospital intends to establish the suggested working party.

[5] This stands for Situation, History, Assessment, Risks, Expectations, Documentation.

181. I make the following recommendations:

To the Macquarie University Hospital

1) That a working party be established to consider lessons learned and possible reforms be established which could be implemented at the Macquarie University Hospital ("the Hospital") as a result of the death of Paul Lau on 19 June 2015:
    a. That the working party comprise a representative from at least Information Technology ("IT"), the Anaesthetics & Perioperative Services Department ("Anaesthetics Department"), the Nursing directorate, the Pharmacy and the Patient Safety and Quality Manager.

2) That the working party consider, or in the alternative, the Hospital considers, the most effective way to implement the following suggested reforms:

Presentation of Paul Lau's Case

    a. A staff seminar or seminars be conducted with the participation of staff from at least from the Anaesthetics Department, nursing staff and the Macquarie University Pharmacy ("the Pharmacy") about the missed opportunities to detect the prescribing error in Paul Lau's care and the lessons learned from his death;

    b. That the nursing staff involved in Paul's care be consulted about how the seminar be presented and have the opportunity to address the seminar if they wish; and

    c. That the seminar address, at a minimum, communication, handover, opioid policy, observation of patients on high-risk medication, Schedule 8 checks and responding to patient deterioration.

TrakCare Changes

    d. Give ongoing consideration to a method of verifying patient identity before medical practitioners submit medication orders on TrakCare, including specific consideration of:
        i. Urgent short term methods of ensuring patient identity verification if software changes are likely to be prolonged in implementation; and
        ii. The manual entry of the patient's name prior to submitting a medication order;

    e. A field/box labelled "current medications" or "medications history" (as determined appropriate) be included in the pre-anaesthetic assessment (see Tab 36C, Annexure C of Exhibit 1);

    f. A field labelled "post-operative pain plan" (or other description as determined appropriate) be added to the Recovery Progress Notes template (see Exhibit 5);

g. That investigation be undertaken into the feasibility and efficacy of an alert when medications are added to a patient's chart after the patient file is allocated to PACU/Recovery; and

h. That representatives of at least IT and the Anaesthetics Department consider the most effective way of ensuring that TrakCare alerts enhance patient safety without unduly distracting or diverting anaesthetists; including
   i. How to safely reduce the number of alerts;
   ii. Removing the default 'batch' override system;
   iii. Creating a hierarchy of alerts;
   iv. Creating a distinct alert for identical duplicate one touch prescribing;
   v. The effective use, if any, of font, format, sound, colour and placement for alerts; and
   vi. Known literature and clinical guidelines on safe e-prescribing.

TrakCare Proficiency

i. That medical practitioner accreditation include a TrakCare assessment process whereby it is mandatory for a person separate from the user to confirm that the user is proficient to safely use the system;

j. That consideration be given to the most appropriate person to conduct the assessment and if the assessment would be more effective in person or on-line;

k. That TrakCare proficiency for anaesthetists be assessed by the use of simulations or scenarios designed in consultation with the Anaesthetics Department.

Handover Practices

l. A staff seminar or seminars be held involving staff from nursing and the Anaesthetics Department about handover practices which would include simulations of handovers by staff, the provision of feedback and discussion of mechanisms to enhance the communication between nursing staff and anaesthetics staff;

m. That an audit or audits be conducted in relation to safe handover practices at the Hospital with particular priority given to practices at PACU/Recovery;

n. That there be a minimum number of audits conducted annually at appropriate intervals; and

o. That the results of those audits be published on the Hospital intranet and be held by the Nursing Directorate.

Perioperative Management

p. That at least representatives of the Anaesthetics Department and the nursing staff consider mechanisms to provide safe and effective perioperative management for patients, including:
    i. Monitoring of patients taking high risk medications;
    ii. Postoperative review of patients by anaesthetists in PACU/Recovery and on the Ward;
    iii. The introduction of a pain service; and
    iv. Relevant existing clinical guidelines including Australian and New Zealand College of Anaesthetists guidelines, Clinical Excellence Commission guidelines and any known proposed upcoming reform.

Conclusion

182. I would like to echo what my counsel assisting, Ms Edwards, so eloquently put in her closing submissions:

> It is clear from evidence that Paul Lau's death will not be forgotten. It will be taught at Macquarie Hospital, reforms will be reviewed at the Hospital by a working group or taskforce under his name and it is likely that his case will be reviewed by the College of Anaesthetists and perhaps by medical schools. But Paul Lau's family and loved ones didn't want him to be a learning opportunity or a test case; they wanted him to be alive. I thank them for enduring us dissecting in great and laborious detail the death of this very real and very loved man.
>
> I also want to acknowledge that a huge number of staff from the Hospital have attended each day, they have assisted in the inquest, made suggestions for reform and provided a lot of material to assist the Court. The impact of Paul's death on the staff who cared for him was palpable and is still obviously deeply felt.

I would like to thank my counsel assisting, Ms Kirsten Edwards and her instructing solicitor, Ms Kate Lockery from the Crown Solicitor's Office. They have put an enormous amount of effort into this case and they are a large part of the reason that this inquest ran so efficiently and so constructively. I would also like to like the interested parties and their legal representatives for their participation and co-operation. They are to be commended for their part in how this inquest proceeded.

Finally, I offer my sincere condolences to Paul's family who have showed such grace and dignity throughout the hearing of this inquest, which must have been so painful. I thank them and I hope that through this process some of their questions have been answered.

Findings required by s81(1)

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

The identity of the deceased

The deceased person was Paul Lau, born on 18 May 1961.

Date of death

Paul Lau died on 19 June 2015.

Place of death

Paul Lau died at Macquarie University Hospital, NSW.

Cause of death

Paul Lau died as a result of aspiration pneumonia caused by multiple drug toxicity.

Manner of death

The death was caused by a prescribing error by an anaesthetist, which led to Mr Lau receiving medication intended for another patient whilst he was recovering from ACL reconstruction surgery. The error was not detected by Hospital staff before his death.

184. I close this inquest.

Magistrate Teresa O'Sullivan
Acting State Coroner
Date: 29 March 2018