OFFICE OF THE STATE CORONER

FINDINGS OF INQUEST

CITATION:	**Inquest into the deaths of** **GRAEME BARRY GULLIVER, JOANNE LEE HARRISON and AILEEN MARGARET MORTEN**
TITLE OF COURT:	Coroners Court
JURISDICTION:	Cairns
FILE NO(s):	2012/987
DELIVERED ON:	8 December 2014
DELIVERED AT:	Cairns
HEARING DATE(s):	20, 21, 24 and 25 November 2014
FINDINGS OF:	Jane Bentley, Coroner
CATCHWORDS:	Coroners: inquest, Cairns and Hinterland Hospital and Health Service, Adult Deterioration Detection Tool, Pathology, Recognition and Management of Deteriorating Patient, Training, Culture, Staffing, Atherton Hospital, Mossman Hospital, doctor fatigue, ADDS, RMDP.

REPRESENTATION:

Counsel Assisting:	Ms Kerri Mellifont QC Ms Stephanie Williams
Mr Gary Elliott and Ms Karen Gulliver:	Ms Ngaire Watson
CHHHS and Dr B, Dr Y, Nurse KB and Dr Brown:	Ms Stephanie Gallagher instructed by Ms Helen Price
Nurses CB, W, F, K and NW:	Ms Sally Robb, instructed by Ms Judy Simpson, Robert and Kane Solicitors

Introduction

Section 45 of the *Coroners Act 2003* provides that when an inquest is held the coroner's written findings must be given to the family of the person who died, each of the persons or organisations granted leave to appear at the inquest and to officials with responsibility over any areas the subject of recommendations. These are my findings in relation to the deaths of Graeme Gulliver, Joanne Harrison and Aileen Morten. They will be distributed in accordance with the requirements of the Act and posted on the web site of the Office of the State Coroner.

These findings and comments:

1. confirm the identity of the deceased persons, the time, place and medical cause of their deaths;

2. consider whether the actions or omissions of any third party contributed to their deaths; and

3. consider whether any changes to procedures or policies could reduce the likelihood of deaths occurring in similar circumstances or otherwise contribute to public health and safety or the administration of justice.

Summary

Graeme Gulliver, Joanne Harrison and Aileen Morten all died from overwhelming infection whilst in the care of the Cairns and Hinterland Hospital and Health Service. Mr Gulliver died at Mossman Hospital on 20 March 2012. Ms Harrison died at the Cairns Base Hospital on 12 January 2012 after being transferred there from the Mossman Hospital. Ms Morten died at the Atherton Hospital on 23 July 2012.

All three died from overwhelming infection and the issue that arose in relation to all three deaths was whether they had received timely and appropriate treatment whilst in the care of the CHHHS.

Graeme Gulliver

Mr Gulliver died at the Mossman Hospital on 20 March 2012. At the time of his death he was 21 years old and lived with his partner Jenna Heimann.

Chronology of Events from 16 to 20 March 2012

Mr Gulliver first started feeling unwell on 16 March 2012. He told Ms Heimann that he thought he had dengue fever which he had suffered from previously, as he had aches and pains. He took paracetamol and ibuprofen that day.

The next day he felt no better so he borrowed his mother's (Karen Gulliver's) car to attend the doctor.

At 10am on 17 March 2012 Mr Gulliver presented to Port Village Medical Centre where he was seen by a GP. Mr Gulliver was with Ms Heimann. He vomited a number of times whilst waiting to see the doctor. At that time he complained that he had been feeling unwell for a few days, had intermittent fever, a cough and body aches. He stated that the previous night he had experienced high fevers, chills and generalised myalgia (muscle pain). His worsening myalgia and fever were his greatest concerns.

The GP diagnosed an infection and told Mr Gulliver that blood tests were needed. The GP then ordered a series of blood tests and prescribed Panadeine Forte. The GP told Mr Gulliver that he would contact him about midday that day.

At about midday the GP telephoned Mr Gulliver to check on him but Mr Gulliver did not answer the phone or return the doctor's call.

At 5pm that afternoon the GP received an urgent phone call from pathologists QML advising that the blood tests indicated a high white cell count and C Reactive Protein. This concerned the GP such that he immediately called Mr Gulliver to discuss a further plan of action. He called twice with no answer and left messages.

Mr Gulliver called back soon after and said that he felt better following the Panadeine. His fever had settled and his myalgia had eased such that he had been able to have a short sleep.

The GP gave Mr Gulliver the results of the blood tests over the phone. He asked Mr Gulliver to go the Mossman Hospital that evening for further review and management. Mr Gulliver agreed to do so. The GP spoke to Ms Heimann. He told her to write down the results of the blood tests – white cell count of 20.4 (normal is 4 – 11), CRP of 128 (normal is 6) and moderate neutrophilia (indicative of bacterial infection). He told her to take that information to the hospital.

The GP then phoned the hospital and spoke to the triage nurse. He gave her Mr Gulliver's details and told her that would be presenting to the hospital. She said she would inform the duty doctor.

KB was the registered nurse on duty on 17 March 2012 and the triage nurse. She does not recall receiving a call from the GP. She made no note of the call.

The GP did not see Mr Gulliver again.

On Sunday 18 March 2012 Mr Gulliver remained ill. Ms Heimann awoke at about 10am and he told her that he had been coughing up blood. He contacted his father, Gary Elliott and Mr Elliott drove Mr Gulliver and Ms Heimann to the hospital. The hospital notes recorded that he attended there 11.11am.

CB was the Registered Nurse in the Emergency Department (ED) from 6.30am to 4pm on 18 March 2012. She was the only RN rostered on for those hours.

CB took personal details and a brief history from Mr Gulliver. She noted that he had been unwell for several days, had diarrhoea, had a productive cough with "bright" blood stained sputum (haemoptysis), a fever, rigors and joint pain.

Ms Heimann gave her the results from the blood tests, as advised by the GP, and CB recorded a white cell count of 20.4, CRP of 128 and neutrophillia.

CB noted that Mr Gulliver looked well, was bright, alert, active and in no obvious distress.

She assigned him a category 4 triage which required him to see a doctor within one hour.

Her impression was that Mr Gulliver was suffering from gastroenteritis and a medical review was arranged that morning. She also noted that she would "chase pathology results QML".

The nurse telephoned QML to request a copy of the pathology results. She cannot recall whether she saw the results or what time she made the call. She made no notes of that call.

Mr Gulliver was examined by Dr Y. Mr Gulliver and Ms Heimann told Dr Y that Mr Gulliver had been coughing up blood. Ms Heimann said that she had insisted Mr Gulliver come to the hospital because he had painful joints and fever. Mr Gulliver said that he had coughed up blood on two occasions.

Dr Y noted the results of the blood tests. He saw the white cell count, the neutrophilia and the raised CRP.

Dr Y considered that those results did not suggest whether the infection was bacterial or viral. Mr Gulliver looked well and on examination was essentially normal. Dr Y considered that the coughing of blood may have been "incidental".

The doctor decided to await the results of the viral studies and told Mr Gulliver to go home and to see his GP the next day but to come back to the hospital if he had rigors, fever, was coughing up blood or was otherwise unwell. He was discharged at 12.07pm.

Mr Gulliver went home but continued to deteriorate. According to Ms Heimann his fever was high and he was in pain. He was taking two panadeine every four hours but the medication was not making any difference. He told Ms Heimann he was dying. Ms Heimann offered, throughout that day and evening, to take him back to the hospital but he refused as Dr Y had told him to wait for the blood results. He believed that Dr Y had thought that he was fine so he shouldn't return to the hospital. Mr Gulliver was using Ms Heimann's asthma puffer as he was out of breath. When he lay down he said he couldn't breathe so he tried to sleep sitting up in a recliner chair.

Mr Gulliver continued to cough blood. Ms Heimann said that he was coughing up deep red clots of blood.

On 19 March 2012 Mr Gulliver told Ms Heimann that he was feeling better. He was coughing up less blood and the panadeine forte was reducing his pain. He stayed at home. He still couldn't eat and was using Ms Heimann's asthma puffer.

Mr Gulliver went to bed at about 8pm that evening but at 10.30pm woke Ms Heimann. He was gasping for breath. She asked him if she should call an ambulance but he said he wanted to have a shower. She helped him to the shower. He sat on the floor of the shower shivering and then began coughing up a large amount of blood. Ms Heimann saw that the floor of the shower was red with blood.

Ms Heimann encouraged Mr Gulliver to go to the hospital but he refused to let her call an ambulance. At about 11.50pm, when he was no better, she called an ambulance despite his protests. Ms Heimann got some things together for Mr Gulliver and helped him to get out of the shower and get dressed.

When the ambulance arrived a female paramedic asked Mr Gulliver what was wrong. He told her he couldn't breathe and was "spewing up blood." She asked how long he had been doing this and he said about twenty minutes. Ms Heimann said that it had

been going on for four days. The paramedic said to Ms Heimann, "I'm not talking to you, I'm talking to the patient." Ms Heimann felt that she could not give any further information to the paramedic and didn't say anything else. The paramedics took Mr Gulliver to the Mossman Hospital in the ambulance.

Enrolled Nurse F was working in the Acute Ward from 10.15pm on 19 March 2012 to 6.45am on 20 March 2012. Clinical Nurse R was also on duty in the Acute Ward and was the team leader. Registered Nurse KB was the nurse in the Emergency Department.

Mr Gulliver was seen at 12.59am by KB. She had been telephoned by QAS who advised of Mr Gulliver's impending presentation. She retrieved his records and noted that he had last presented on 18 March 2012 and that it was noted at that time that results were being awaited and he was for follow up by his GP.

When Mr Gulliver arrived he was being given oxygen via nasal prongs and the paramedic told KB that he had coughed up blood that evening prior to calling QAS.

KB triaged Mr Gulliver as a category 4. She noted on the ED form that he had been unwell for 4 to 5 days, that he had nausea, coughing and vomiting and a mild headache. She did not record that she had been told by QAS officers that he had been coughing up blood prior to attending hospital.

KB took a set of observations at 1am which revealed that his temperature was 38.8, pulse was 116, blood pressure 112/62, his respiration rate was up (36) and his oxygen saturations were down (93% on 4 litres of oxygen per minute). She provided oxygen to him by Hudson mask at 6 litres per minute.

Had KB completed an ADDS (Adult Deterioration Detection Tool) chart at 1am when she took the observations, the ADDS score would have clearly indicated a Medical Emergency Team (MET) call was required.

KB decided to wait ten minutes and take another set of observations. Whilst she waited she spoke to Mr Gulliver and obtained a history from him. Ms Heimann told KB that Mr Gulliver had coughed up blood prior to the QAS arriving that evening.

At 1.10am KB took another set of observations. Mr Gulliver's respiration had decreased (24) and his oxygen saturations had increased (96% on 6 litres of oxygen). His pulse was 113, his blood pressure was 118/62. The ADDS score at that time, had it been calculated, again required a MET call.

KB phoned the doctor on call – Dr B. She told him:

- Mr Gulliver had been brought in by ambulance;
- He walked in;
- He had a cough and fever and had vomited from coughing;
- The results of the 1.10am observations;
- Mr Gulliver had coughed up blood prior to calling QAS;
- He had been seen by Dr Y the day before and read out the blood test results including the white cell count and that Mr Gulliver had been advised at that time to return to his GP.

Dr B questioned KB as to the amount of blood that Mr Gulliver had been coughing up and she said that there was a little bit of blood in his sputum. Dr B considered that

blood stained sputum could result from an upper respiratory tract infection or from damage sustained from vigorous coughing.

Dr B considered that Mr Gulliver may have been suffering from community acquired pneumonia and his impression was that Mr Gulliver was a fit young man and was unwell with aches and pains, a fever and a cough.

Dr B asked KB if Mr Gulliver was eating and drinking and was told that he was drinking. He decided that oral antibiotics were appropriate.

Dr B told KB to admit Mr Gulliver to an isolation ward and give him 1 gram of amoxicillin and brufen. KB told Dr B that Mr Gulliver had been taking panadeine forte and the details of his last dose. Dr B told her to continue paracetamol four hourly. He told her to take a sputum specimen. He said that he would see Mr Gulliver in the morning but she should phone him if he deteriorated.

KB administered the drugs to Mr Gulliver and made notes of her conversation with Dr B.

KB changed Mr Gulliver's oxygen delivery to 3 litres per minute. She commenced a medication chart and an ADDS chart. She inserted the observations she had previously taken onto the ADDS chart. She saw that the ADDS score at 1am required a MET call. She considered that she had taken appropriate action as she had called Dr B.

KB took Mr Gulliver to the ward at about 1.30am and did a handover to Clinical Nurse R and admitted him to the Acute Ward.

Enrolled Nurse F saw Mr Gulliver in the Acute Ward when he was admitted there at about 1.30am. She and R spoke to Mr Gulliver and Ms Heimann. F thought that Mr Gulliver did not look well. He was nauseous and lethargic.

F heard R and KB having a conversation at the nurses' station some time after Mr Gulliver had been admitted. They were talking about a sputum specimen that had been collected from him. F commented that there was a lot of blood in it. R told her it was from Mr Gulliver vomiting.

F did not take any observations as KB attended to them whilst she was on the ward and then R took over when KB returned to ED.

KB did another set of observations at 3am. At that time she saw Mr Gulliver vomit and there was blood in the specimen jar she had given to him for any sputum he coughed up. However, she considered that the observations indicated that his condition had improved. The total ADDS score was 3. She showed the blood to R who did "not appear concerned" and said that the blood may have come from varices in the throat caused by coughing.

At 4am KB noted that she had collected a sputum sample and that Mr Gulliiver had vomited 20 ml green fluid. She did not note that there was blood in the sputum specimen.

At 5am KB recorded that Mr Gulliver had vomited 50 ml of green fluid. KB said that she did not see Mr Gulliver after 3am and wrote notes at 4am and 5am that related to her review of him at 3am and her observations of him vomiting then.

Ms Heimann was with Mr Gulliver all night. She said that he was having trouble breathing all night. He couldn't talk to her very much as he had the oxygen mask on at all times. He was coughing blood into the mask and he would raise it and wipe the blood away with a tissue.

At about 5.30am F checked on Mr Gulliver. She saw that he was uncomfortable and nauseous. He was unsettled and restless. He had vomited. F told R that she was concerned about Mr Gulliver and asked her to check on him.

Observations were taken at 6am. The ADDS score was 4 at that time. A score of 4 requires the team leader to be notified, the patient to be seen by a doctor within 30 minutes and hourly observations. If the patient is not reviewed within 30 minutes the nurse is required to escalate the matter.

In the column which requires the nurse to note the action taken, the following note was made, "Pt off O2 whilst vomitting (sic) hence SaO2 ↓ put back on O2 NP."

At 6.15am R noted that Mr Gulliver was afebrile, his oxygen saturations were 96% on four litres of oxygen, he was nauseous and had no further vomiting. She noted that his observations were stable.

Registered Nurse W started her shift in the Acute Ward at 6.30am on 20 March 2012. She was the team leader for the shift. She attended a handover with R.

R told W that Mr Gulliver had been admitted overnight, his girlfriend had stayed overnight with him, he had not been seen by a doctor, a blood stained sputum had been collected which had to be taken to ED so that it could be sent to pathology, that he might have Dengue Fever or a viral illness, that he had previously presented to the hospital and that he was on four hourly observations.

W conducted a round of the patients between 7.15am and 7.30am. At that time Mr Gulliver and Ms Heimann were both sleeping. She did not disturb them.

About an hour later W checked on Mr Gulliver again and he was still asleep. He looked unwell – his colour was grey. She awoke him and recorded a set of observations on the ADDS chart at 8.43am. The total ADDS score was 5 so she immediately asked Dr B to review Mr Gulliver. She showed him Mr Gulliver's ADDS chart and told him about the sputum sample.

Dr B worked from 8am to 6.30pm on 19 March 2012 and was on call from then until 8am on 20 March 2012 when he started work at the hospital again. The on-call doctor had been unable to get to the hospital due to a road closure.

Dr B saw Mr Gulliver at about 8am on 20 March 2013. He reviewed the bedside chart which consisted of the ADDS chart and medication chart. He noted the neutrophilia and the white cell count.

The ADDS chart indicated that Mr Gulliver was tachycardic (heart rate was fast) and hypotensive (low blood pressure). Mr Gulliver looked unwell – his eyes were sunken, his skin pale and clammy. Dr B was shown the sputum sample and noted that it was "very heavily blood stained".

Dr B formulated a treatment plan:

- Blood tests through a cannula he inserted;

- Immediate IV fluids as he was dehydrated;
- Antibiotics – 1g of Ceftriaxone to be administered immediately;
- A chest X-ray to assist in diagnosis;
- Mr Gulliver to be placed in the observation ward directly behind the nurses' station so that he could be monitored more closely.

Mr Gulliver returned from the chest x-ray and was moved to an observation ward where a second IV access was gained and blood taken. Among the tests ordered by Dr B was one for leptospiral antibodies.

On Mr Gulliver's return to the ward W took another set of observations. She called a Medical Emergency due to the results of those observations.

Dr B attended immediately and ordered further IV fluids and IV antibiotics. Mr Gulliver was moved to an observation room behind the nurses' station. W took his observations again at 10.16am, 10.19am, 10.26am, 10.32am and 10.50am.

Shortly after the last set of observations was taken Ms Heimann went to the nurses' station and told the nurses and Dr B that Mr Gulliver was gasping for breath and required assistance. Dr B noted that Mr Gulliver had coughed up about 200ml of blood. He said he couldn't breathe. Mr Gulliver was moved to the resuscitation bay in ED.

Dr B intubated and ventilated Mr Gulliver and commenced CPR. Paramedics arrived and assisted with the CPR.

Dr B arranged an immediate helicopter transfer and obtained advice from an on call consultant who recommended the use of a carbapenem antibiotic and the addition of azithromycin which is effective against atypical organisms which may cause a pneumonia.

CPR continued but despite all efforts to save him Mr Gulliver suffered a massive pulmonary haemorrhage and was pronounced deceased at 12.11pm on 20 March 2012.

After Mr Gulliver died, Nurse W made a note on a separate progress sheet about the sputum specimen that had been collected the night before. She noted that she had located it still at the nurses' station and that it consisted of 20 to 30ml of frank blood rather than blood stained sputum as she had been told at handover. She put that separate sheet with the patient's clinical record.

Autopsy Results

Dr Paull Botterill, Specialist Forensic Pathologist, conducted an autopsy on 22 March 2012. Dr Botterill concluded that Mr Gulliver died from generalised sepsis (Leptospirosis). Dr Botterill stated:

> *At the time of autopsy, the cause of death was a haemorrhagic lung process; most probably the consequence of infection but the exact aetiology* [cause or causes] *was not completely clarified. Microscopic examination showed lung haemorrhage and diffuse alveolar damage, with inflammation in keeping with pneumonia. Lymph node and liver changes were also consistent with overwhelming infection, although the exact nature of the infection remained difficult to isolate. Cultures for bacteria, viruses and fungi did not identify any organism, although blood*

taken prior to death showed features consistent with recent Leptospirosis infection.

Although the exact nature of the underlying illness in my opinion remains unclear, and the presentation and post mortem features were not completely typical of most lethal Leptospirosis infections, it nevertheless appears that such an infection may explain the death, particularly in the absence of any alternative toxicological or haematological reason for the presentation and autopsy findings. It is presumed that the inability to identify the organism in post mortem samples was related to the appropriate introduction of antibiotic therapy prior to his death.

Review by Queensland Health

Queensland Health carried out an investigation into the death of Mr Gulliver which resulted in a Root Cause Analysis Report.

That report identified the following concerns:

1. The culture in the facility influenced the process for the review of patients who require admission; this led to the patient not being reviewed by a medical officer on admission and a delay in recognising the severity of the illness; this contributed to the failure to provide appropriate and timely treatment and to the patient dying.

2. The correct utilisation of the ADDS tool was not embedded in workplace culture; this led to the ADDS actions required for escalating care not being followed and a delay in recognising the severity of the illness and appropriate treatment of the infection; this contributed to a failure to provide timely care and to the patient dying.

3. The workplace culture was to value historical processes over current best practice for standardised clinical handover; this led to variable handover and unreliable transfer of information, which contributed to a failure to escalate care and to the patient dying.

4. Medical officer fatigue in rural facility when unforeseen understaffing occurs may have led to the patient not being reviewed by a doctor on admission and the subsequent delay in recognising the severity of illness and providing appropriate and timely treatment.

5. The provision of clinical governance is hampered by the multiple priorities and additional non-clinical duties placed on Nurse Unit Managers managing clinical areas.

The report made a number of recommendations in relation to the shortfalls identified:

1. A procedure is developed that instructs medical officers to do an on-site medical assessment on all patients who require admission

2(a) Develop and deliver a Recognition and Management of Deteriorating Patients one day workshop for nursing and medical staff to develop clinical champions in the workplace

This would be implemented if 25% of the staff from each clinical unit attended a workshop

2(b) The patient's ADDS score is quoted in all clinical handovers between clinical staff

2(c) The facility undertake bi-monthly audits of the ADDS tool and the recommendations from these audits are reviewed by the Health Service Clinical Care Review Committee for a period of two years.

3(a) Strengthen the process of bedside clinical handover by implementing the Australian Commission on Safety and Quality in Health Care OSSIE Guide to Clinical Handover improvement.

3(b) Facility medical representative meet with local General Practitioners to develop a local process for referral of patient s to facility for review and admission. This should include a mandatory doctor to doctor handover.

3(c) The Commissioning Authority recommend to the Medical Director, QAS, to undertake a root cause analysis or similar clinical analysis in relation to the transportation of Mr Gulliver.

4. A centralised system for backfill of medical officers for rural facilities is developed to assist in managing fatigue.

5. Provide support to Nurse Unit Managers that will allow them to undertake tasks associated with clinical governance to enable them to embed and monitor cultural change with recognition and management of deteriorating patient and specifically with the utilisation of the ADDS tool

In August 2013 the Executive Director of Medical Services, CHHHS advised that the CHHHS had implemented the recommendations contained in the report as follows:

1. A procedure, "Emergency Admissions to a Rural Hospital or Multipurpose Health Service" has been developed and implemented. It directs that all patients requiring admission to such hospitals must be assessed on-site by a medical officer and have a documented plan of care in the medical record prior to admission.

2(a) The service has commenced to develop and deliver a workshop addressing recognition and management of deteriorating patients for nursing and medical staff.

2(b) The service has developed an audit tool in relation to the clinical handover (shift to shift) of nursing staff to ensure that the patient's ADDS score is quoted in all clinical handovers.

2(c) The service undertakes bi-monthly audits of the ADDS tool and the recommendations from such audits are to be reviewed by the Health Service Clinical Care Review Committee for a period of two years.

3(a) The Australian Commission on Safety and Quality in Health Care Guide to Clinical Handover Improvement has been implemented to strengthen the process of bedside clinical handover.

3(b) The Medical Superintendent notified all local GP's to contact the on-call doctor at the facility to discuss patients they are referring to the facility, in particular, "high acuity patients, or critical pathology results on patients you are referring to Mossman" and gave details of the direct phone number to contact the on-call doctor and an alternative contact number, and this procedure has been reviewed and found to be working effectively.

Dr Brown is the Medical Superintendent, Hinterland Hub, CHHHS. The Hinterland Hub of the CHHHS includes the Atherton and Mossman Hospitals. Dr Brown's position, as well as Medical Superintendents of the other two hubs of the CHHHS was created following on from the internal organizational restructure of the CHHHS in February 2013. The roles were created to govern the safety and quality processes across the facilities located within each hub.

In February 2014 Dr Brown advised of the further implementation of the recommendations contained in the RCA report as follows:

1. The procedure has been developed – as of 1 February 2013 all ED presentations who present to the service will receive a triage assessment by a registered nurse and if the nurse determines that the patient may require admission, the medical officer on call is to be contacted and a review requested, that patient must be assessed and a plan of care developed by the doctor prior to transfer to the admitting unit. The assessment and plan of care is to be reviewed by a Senior Medical Officer.

2(a) The procedure was commenced, postponed due to restructure and has been re-commenced. A one day workshop is planned for 2014 for all enrolled and registered nurses at the Mossman Hospital and Recognition and Management of the Deteriorating Patient (RMDP) training in 2014 continues to be provided in the mandatory training sessions conducted at the Mossman Hospital.

2(b) The patient's ADDS score is quoted in all clinical handovers between clinical staff.

2(c) Bi-monthly audits of the ADDS tool and the recommendations from the audits are to be reviewed by the Health Service Clinical Care Review Committee for two years.

3(a) Bedside clinical handover has been implemented across the CHHHS.

3(b) The former Medical Superintendent developed the protocol that all local GP's receive an up to date telephone listing of contact numbers for the Mossman Hospital. This list is accompanied by a request that the GP makes a phone call to discuss any high acuity patients, or critical pathology results on patients they are referring to the Mossman Hospital.

Review by Forensic Medical Officer

Dr Leslie Griffiths, Forensic Medical Officer, Clinical Forensic Medicine Unit, reviewed the treatment and management of Mr Gulliver at the Mossman Hospital between 18 and 20 March 2012.

Dr Griffiths stated that the results of the blood tests which were reviewed by Dr Y on 18 March 2012 should have indicated to the doctor that Mr Gulliver was most probably suffering from a bacterial infection. The doctor should have treated Mr Gulliver accordingly which would have meant admitting him to hospital and ordering a chest x-ray and a blood culture. Empirical treatment with an intravenous antibiotic could then have been commenced.

There was, therefore, a lost window of opportunity on 18 March 2012 to commence treatment which may have had a material effect over the next two days.

Dr Griffiths notes that on his presentation on 20 March 2012 Mr Gulliver was triaged as category 4. The Queensland Health guidelines state that a category 4 patient should be seen by a doctor within 60 minutes. Mr Gulliver was not seen by Dr B until 8.30am on 21 March 2012.

Dr Griffiths is of the opinion that Mr Gulliver's treatment, from when he was seen by Dr B at 8.30am on 21 March, was appropriate.

Dr Griffiths stated that the failure in the case of the treatment received by Mr Gulliver at the Mossman Hospital was in failing to recognise the seriousness of his presenting illness and failing to administer in a timely manner appropriate treatment before the dramatic deterioration of his condition after his second presentation to the hospital.

Dr Y should have had a reasonable belief, based on the history and the blood results that were known to him, that Mr Gulliver was suffering from a bacterial infection rather than a viral infection and treated him accordingly. Dr Griffiths said that for Dr Y have not ordered a test as fundamental as an x-ray in a patient with a three day history of intermittent haemoptysis was extraordinary and to simply refer him back to the general practitioner on paracetamol only, in the face of the available clinical and haematological evidence and the history, was perplexing.

Dr Griffiths noted that the cases of Ms Harrison and Mr Gulliver both involved acutely unwell young people presenting to Mossman Hospital where neither was seen by a doctor on their admission. Both were thought to have a viral illness despite the clear and unequivocal evidence on their blood results that they were suffering from a bacterial infection. Neither, therefore, had the benefit of timely, empirical treatment based on a working diagnosis until their clinical course had dramatically deteriorated to a point where such treatment had become futile.

Review by Professor Brown

Professor Anthony Brown MB ChB, FRCP, FRCSEd, FACEM, FCEM, Senior Staff Specialist of the Department of Emergency Medicine, Royal Brisbane and Women's Hospital and Professor, Discipline of Anaesthesiology and Critical Care, MB BS Program, School of Medicine at the University of Queensland is a senior emergency medicine specialist, with many years of consultant practice, is widely published and has won several teaching excellence awards.

Professor Brown noted that Mr Gulliver died from an uncommon condition (Leptospirosis) which carries a high mortality rate in tertiary hospitals. Haemorrhagic pulmonary leptospirosis is an uncommon manifestation of leptospirosis, with a very high mortality of over 50% despite antibiotic treatment.

Professor Brown agreed with Dr Griffiths that the error of medical judgement in regard to Mr Gulliver's treatment was made on 18 March 2012 at the time of his first presentation.

Despite having a significant history of cough with blood on a background of fevers and joint pain, a raised temperature of 37.8 degrees Celsius, pulse of 104/min, raised white cell count with neutrophils and a raised CRP, Dr Y made no diagnosis at all and sent Mr Gulliver home.

Professor Brown stated that it is inexplicable why a chest xray was not ordered and Mr Gulliver admitted at that time. Further inpatient care would have then included blood cultures that would have been positive and antibiotics for a suspected chest infection.

Antibiotics given for pneumonia would also have covered leptospirosis infection. However, it is unclear whether the administration of antibiotics, even at that time, would have affected the outcome for Mr Gulliver given the severity of his pulmonary leptospirosis.

Professor Brown stated that the responsibility for sending Mr Gulliver home on 18 March 2012 rests with the doctor as the ADDS tool would not have triggered any concern at that time.

When Mr Gulliver presented again at 12.59am on 20 March 2013 he should have been seen immediately by a doctor, in person. His ADDS score, according to Professor Brown was 9 at that time and 7 at 1.10am and both indicated he should have absolutely been seen by a doctor within 30 minutes.

In addition, there was serious under-triaging with a category 4 – the symptoms warranted a category 2 which requires a patient to be seen by a doctor within 10 minutes, or at least, category 3 – to be seen within 30 minutes.

Professor Brown noted that Dr B was one of just two senior medical officers sharing on call for the facility at the time of Mr Gulliver's presentation. Professor Brown stated that this is completely unacceptable.

Joanne Harrison

Ms Harrison died at the Cairns Base Hospital at 3.09pm on 12 January 2012. She was 28 years old.

Chronology of Events from 9 to 12 January 2012

Ms Harrison attended her general practitioner at the Port Village Medical Centre at 10.30am on 9 January 2012 for an urgent medical appointment. She was unwell with a sore throat, sore glands in her neck and a bad headache. She reported that she'd had a headache for two days. She was febrile with a temperature of 38.9 degrees. Her pulse was 105 beats per minute. She had no crepitations and no bronchi. She was retching during the examination. She had no photophobia (sensitivity to light), no rash and no neck stiffness.

The doctor came to the conclusion that Ms Harrison was suffering from an infection and it was most likely a significant throat infection. He considered that Ms Harrison was not suffering from meningitis. He established that Ms Harrison had no risk factors for leptospirosis.

Ms Harrison was seen by the practice nurse who administered Maxolon for nausea, oral fluids and analgesia for the headache. The nurse also took blood and ordered blood tests. She recorded that Ms Harrison's blood pressure was 130/82 and her temperature had risen to 40.3.

The doctor prescribed a broad spectrum antibiotic, oral cephalexin (Keflex). He told Ms Harrison that her symptoms should settle but if they did not, that could indicate a more serious infection and she may have to go to hospital for intravenous treatment. The doctor requested full blood tests. He advised Ms Harrison to go to Mossman Hospital or contact the Medical Centre if she failed to improve or got worse.

Ms Harrison attended QML in Mossman at 12.25pm that day for blood tests.

At 8.02pm on 9 January 2012 the on call doctor at Port Village Medical Centre phoned Ms Harrison's GP at home and told him that he had been contacted by QML who had advised that Ms Harrison's white cell count was elevated at 35 (normal level is between 4 and 11).

The doctor immediately called Ms Harrison and told her sister that the results could indicate a more serious infection and that she should take Ms Harrison to the Mossman Hospital immediately. He stressed that she should advise the admitting team that Ms Harrison's white cell count was 35.

The doctor called the Mossman Hospital to speak to the admitting doctor but was transferred to a pre-recorded message which advised that the hospital was closed. There was no capability to leave a message.

The doctor had previously been unable to contact the doctor on duty at Mossman Hospital both in and out of hours and had frequently had to discuss a patient who was to be admitted with a nurse in the ED.

The doctor considered that Ms Harrison's sister would take her to the hospital and would advise of the white cell count so, reasonably in the circumstances, he did not call the hospital again.

Ms Harrison's sister followed the doctor's advice and took Ms Harrison to the Hospital.

Ms Harrison presented to the ED of the Mossman Hospital at 8.43pm on 9 January 2012.

She was triaged by Registered Nurse NW who was working from 2pm to 10.30pm on that day. NW was the only registered nurse on roster for the late shift. NW triaged Ms Harrison as "category 4". That category requires the patient to be reviewed by a doctor within one hour.

At 8.50pm NW took a set of observations which showed Ms Harrison was febrile at 38.7 degrees and tachycardic at 115 bpm (normal heart rate is 60 – 100 bpm).

NW's notes recorded that Ms Harrison had seen her GP who had started her on cephalexin (500mg three times per day), that she had continued vomiting and was not tolerating fluids, she had a headache and flu-like symptoms, no photophobia, neck pain but not stiffness and no urinary symptoms. If Ms Harrison's sister advised NW of the white cell count as told to her by the GP NW did not make a record of it in the notes.

There was no doctor at the hospital at that time. Dr B was on call.

Dr B had been working at the hospital from 8am to 6.30pm that day and was then on call until 8am the next day when he commenced work at the hospital again.

NW phoned Dr B and relayed the information that he had recorded in the notes. Dr B formed the view that Ms Harrison most likely had a generalized flu like viral illness, that her symptoms were exacerbated by dehydration and, if there was a bacterial infection, that it was being addressed as she had already been started on antibiotics.

Dr B ordered IV fluids for dehydration and IV ondansetron for nausea and vomiting. NW inserted an IV cannula, took bloods and, at 9.05pm commenced the first litre of IV normal saline and administered the ondansetron.

At 9.20pm NW gave Ms Harrison brufen for pain.

At 9.40pm NW took another set of observations which revealed that Ms Harrison was still febrile with a temperature of 39.1 degrees. Her pulse had dropped to 94. He gave her oral paracetamol.

At 10.15pm NW handed over the care of Ms Harrison to Registered Nurse K.

At 10.40pm K took a full set of observations and obtained a history from Ms Harrison and her sister who had stayed with her.

Ms Harrison's temperature had dropped to 37.7 degrees, her pulse was normal (69), her respirations were 18 and her blood pressure had dropped to 92/62. Her oxygen saturation was 97% and her pain score 6/10.

Nurse K recorded that Ms Harrison remained unwell looking, her headache remained at 6/10, her neck was stiff and she was unable to put her chin to her chest and had restricted side to side movement and she was finding it hard to keep her eyes open even with the lights dimmed. K recorded that Ms Harrison's GP had phoned Ms Harrison at 8.30pm and advised her to attend hospital and receive fluids and that she had a white cell count of 35. K recorded that the GP had taken blood for viral studies as well.

At 10.50pm K again took Ms Harrison's blood pressure and it was 94/63 which was a slight improvement.

K phoned Dr B and relayed her observations and told him that the fluids were finished and Ms Harrison was not well enough to go home. He advised her to admit Ms Harrison to the ward and prescribed 5mg Endone (for the headache) and further IV fluids.

K cannot recall exactly what she told Mr B on the phone but it was her usual practice to tell the doctor everything she had written in the notes and she has no reason to believe she did not do so on that occasion.

Dr B believes that K did not advise him of the neck stiffness or photophobia as, had she done so, he would have recognized those as the classic symptoms of meningitis and immediately gone to the hospital to review Ms Harrison. He was unaware that Ms Harrison's GP had referred her to the hospital.

K administered the Endone and started the fluids. She took Ms Harrison to the Acute Ward.

K took another set of observations at 11.20pm which she recorded on the ADDS chart: respiratory rate 18, oxygen saturations 99% on room air; blood pressure 95/62; pulse 84; temperature 37, alert – ADDS score 2 (no specific actions required but should consider increasing frequency of observations, minimum 4 hourly), pain score 5 and nausea 1.

K handed over to the Acute Ward nurse and at 12.05am on 10 January 2012 made an entry in the progress notes:

> *New admission into B2 with ? viral illness. Headache and neck stiffness for 2/7. Unable to tolerate oral fluids. Nausea has settled since ondansetron in ED. Endone given for persistent headache. IVT o/n 100 mls/hr.*

Registered Nurse AS took observations at 5.30am on 10 January 2012 and gave Ms Harrison some paracetamol. That nurse recorded an ADDS score of 2. Respiratory rate was 17, temperature was 37, oxygen saturations 98%, blood pressure 95/62, pulse 79, pain score 5 and Ms Harrison was alert.

Enrolled Nurse S commenced her shift at 6.30am on 10 January 2012.

S had a conversation with Ms Harrison shortly after starting her shift. At 7.40am S gave Ms Harrison 5mg Endone for her headache after obtaining permission to do so from the nurse team leader, Registered Nurse H.

Dr B started his shift at about 8am on 10 January 2012. He had a handover which lasted about an hour and then commenced a ward round.

He saw Ms Harrison shortly before 9.30am. He looked at her bedside (clinical) chart which contained the ADDS charts and the medication charts. He saw that her observations taken that morning were normal. He did not, at that time, review the ED form or the progress notes made by K at 12.05am as those records were kept at the nurses' station rather than the patient's bedside.

Ms Harrison was sleeping at the time. Dr B roused her and she sat up. He sat down next to her bed and talked to her for about 15 minutes. He saw that Ms Harrison could move her head from side to side when speaking to her and was nodding and he formed the view that she was not suffering from neck stiffness. She did not appear to display any photophobia or other symptoms that caused him any concern.

Dr B recorded in the notes that Ms Harrison was unwell with a bad and throbbing headache and nausea, that she had swollen glands in her neck, that she had started on Keflex the day before, that she was not eating and was dehydrated. He wrote that he would review her later. He formed the view that she needed fluids and more rest and prescribed analgesia and intravenous fluids. He did not conduct a physical examination of her, deciding instead to allow her to rest and to come back later.

S took observations again at 10.40am. They were as those taken at 5.30am except that Ms Harrison's temperature had increased to 38 degrees. The total ADDS score was not calculated but would have been 3 which requires the nurse to consider notifying a team leader.

Ms Harrison told Nurse S that she still had a headache and her neck was sore. The light was off and the nurse thought that Ms Harrison looked like someone who had a very bad headache or migraine.

At 12.05pm S and H administered 1 litre of saline to Ms Harrison.

S saw Ms Harrison again at about 1.30pm. She noted that Ms Harrison had not passed urine and still had a pain score of 5. She gave Ms Harrison 5mg Endone after having that authorized by H. S was concerned that Ms Harrison had received quite a bit of fluid and had not passed urine so she went to see Dr B. He said he would review Ms Harrison.

Dr B saw Ms Harrison at 2.40pm. Ms Harrison was suffering from blurred vision, she was afebrile, she looked unwell and her left pupil was dilated relative to her right. Dr B was very concerned about her focal neurology in the context of "ongoing headache and neck stiffness". His plan was to move Ms Harrison to the resuscitation ward for immediate transfer to the Cairns Base Hospital with a doctor escort, start antibiotics as per meningitis guidelines, blood for cultures and electrolytes, discuss with ED, optic nerve ultrasound. Dr B noted that the results from the ultrasound indicated no increase in intercranial pressure and Ms Harrison appeared stable for transfer.

Ms Harrison told Dr B that she still had a headache and this concerned him as she had been given analgesia since her admission. She said her neck was getting worse and she had blurred vision.

Dr B was most alarmed by Ms Harrison's left pupil which was significantly different to her right pupil. He formed the view that the likely diagnosis was meningitis.

Ms Harrison was given her first intravenous antibiotic (ceftriaxone) at 2.55pm. Twenty minutes later she was given benzul penicillin G and the anti-viral agent acyclovir.

Dr B considered whether Ms Harrison should be transported to Cairns by helicopter or by road. The travel times were about the same but helicopter transfer could take much longer if the helicopter was not available.

Dr B telephoned the ED consultant at the Cairns Base Hospital and advised him that Ms Harrison was to be admitted to that hospital. The ambulance took about 30 minutes to arrive and left with Ms Harrison about five minutes later. Dr B went with her in the ambulance.

As the ambulance approached the Smithfield Shopping Centre (about 15 minutes from Cairns) Ms Harrison's oxygen saturations dropped. Dr B supplied supplementary oxygen which brought the saturations back up to 100 but they dropped again. He applied a bag-valve mask and told the driver to get to the hospital as soon as possible with lights and siren activated.

Upon arrival at the Cairns Base Hospital Ms Harrison was transferred to the care of the ED staff. She was intubated and ventilated and transferred to the intensive care unit. Her condition continued to deteriorate and CT scans showed evidence of brain death.

Ms Harrison was pronounced deceased at 3.09pm on 12 January 2012. Ms Harrison's family made the generous decision to donate her organs and that procedure was carried out.

Autopsy Results

No autopsy was performed as Ms Harrison's death was not reported to the Coroner until 31 January 2012 when it was realised that there was a failure to diagnose that she was suffering from streptococcal meningitis and septicemia.

Review by Queensland Health

Queensland Health carried out an investigation into the death of Ms Harrison which resulted in a Root Cause Analysis Report.

The findings contained in that report were:

1. The culture in the facility influenced the process for the review of patients who require admission; this led to the patient not being reviewed by a medical officer on admission and a delay in recognizing the severity of the illness; this contributed to the failure to provide appropriate and timely treatment to the dying patient.

2. The correct utilization of the ADDS tool was not embedded in workplace culture; this led to the ADDS actions required for escalating care not being followed and a delay in recognising the severity of the illness and appropriate treatment of the infection; this contributed to a failure to provide timely care and to the patient dying.

3. The majority of triage training within the facility is self-directed and learnt on the job from other local clinicians; this has led to a culture within the facility to allocate a conservative triage score and to the patient not accurately triaged, this contributed to a failure to provide appropriate and timely care and to the patient dying.

4. The workplace culture was to value historical processes over current best practice for standardized clinical handover; this led to variable handover and unreliable transfer of information, which contributed to a failure to escalate care and to the patient dying.

The RCA team also identified the issue of inadequate documentation in the medical records.

The recommendations arising out of the findings were:

1. A procedure is developed that directs medical officers to do an on-site medical assessment on all patients who require admission.

2. The Emergency Admission to a Rural Hospital or Multipurpose Health Service Procedure is included as a mandatory component of all rural hospital and MPHS Medical orientation programs.

   a. This recommendation would be considered as having been fully implemented if the Procedure was included as a mandatory component of all rural hospital and MPHS Medical orientation programs by 30 April 2013.

3. The patient's ADDS score is quoted in all clinical handovers between clinical staff.

4. Bi-monthly audits of the ADDS tool and the recommendations from the audits be reviewed by the Health Service Clinical Care Review Committee for two years.

5. ED triage forms be formatted to allow only one set of observations to be recorded and a column added called ADDS score.

6. Develop and deliver a Recognition and Management of Deteriorating Patient one day workshop for nursing and medical staff.

   a. This recommendation would be considered as having been fully implemented if 25% of all staff from each clinical unit had attended a workshop as at 30 June 2013.

7. All staff working in rural ED departments attend a triage training workshop within 3 months of commencing work in the ED.

   a. This recommendation would be considered as having been fully implemented if 90% of staff had attended a triage workshop within three months of having commencing work in the ED by 30 June 2013.

8. Strengthen the process of bedside clinical handover by implementing the Australian Commission on Safety and Quality in Health Care OSSIE Guide to Clinical Handover Improvement.

   a. This recommendation would be considered as having been implemented if that method of handover was utilized at least once per 24 hours for all inpatient clinical areas by 30 June 2013.

9. Facility medical representative meet with local General Practitioners to develop a local process for referral of patients to facility for review and admission which should include a mandatory doctor to doctor handover.

   a. This recommendation would be considered as having been implemented when a protocol for such referral of patients was developed.

10. CHHHS Legal Unit provide information session to reinforce required standard of documentation in the patient record to clinical staff in the rural facilities on three occasions by 31 December 2013.

The RCA report was completed on 30 April 2013. In February 2014 the Executive Director of Medical Services, CHHHS, advised of the implementation of the recommendations contained in the RCA report as follows:

1. The procedure has been developed – as of 1 February 2013 all ED presentations who present to the service will receive a triage assessment by a registered nurse and if the nurse determines that the patient may require admission, the medical officer on call is to be contacted and a review requested, that patient must be assessed and a plan of care developed by the doctor prior to transfer to the admitting unit. The assessment and plan of care is to be reviewed by a Senior Medical Officer.

2. Completed by the Mossman hospital – all new doctors to the hospital upon arrival and/or during orientation on their first day receive an orientation package which includes material relating to the on-call procedure.

3. Completed – the roll out of the Clinical Handover (Shift to Shift) Clinical Audit Tool (the audit tool) to all facilities within the CHHHS for the purpose of auditing Clinical Handover of nursing staff has occurred and audits have been conducted. As at February 2014 the audit identified that ongoing education for all nursing staff was required to improve their knowledge and heighten awareness of clinical documentation requires.

4. Commenced – this recommendation will be completed after the HSCCRC have reviewed the audits for two years.

5. Completed and the Mossman Hospital have developed a local checklist for admission to the ED.

6. Commenced – a one day workshop is planned for 2014 for all Enrolled and Registered Nurses at the Mossman Hospital – date still to be confirmed. In addition, RMDP training continues to be provided as part of the mandatory training sessions conducted by the Nurse Educator at the Mossman Hospital and at least 75% of clinical staff have completed the training though either orientation programs as well as mandatory training session days.

   Ryans' Rule procedure is expected to be implemented by October 2014.

7. National Safety and Quality Health Service Standard 9 describes the systems and processes to be implemented by health service organizations to respond effectively to a patient whose condition is deteriorating. To achieve this standard, which commenced from 1 January 2013, the CHHHS is required to establish and maintain systems for recognizing and responding to clinical deterioration. Compliance with this standard will be assessed November 2014.

8. The recommendation had been allocated to the Health Service Director of Emergency and the Executive Director was unable to advise as to its status.

9. Completed – bedside clinical handover has been implemented across the CHHHS since July 2012.

10. Completed – the former Medical Superintendent developed the protocol that all local GP's receive an up to date telephone listing of contact numbers for the MMPHS and attached to that list was a request that GP's phone the hospital to discuss any high acuity patients, or critical pathology results on patients they are referring to the hospital. That list is now distributed to local GP's each month. New doctors are advised, during orientation, that if a patient is referred by a GP without a referral letter they should call the GP to discuss the reason why and obtain any critical pathology results.

Review by Forensic Medical Officer

Dr Griffiths, Forensic Medical Officer, reviewed the treatment and management of Ms Harrison at the Mossman Hospital.

The doctor noted that the notes of the General Practitioner from Port Village Medical Centre who saw Ms Harrison at 11am on 9 January 2012 were clear and comprehensive. He ordered appropriate tests and took appropriate action.

By 10.15pm Ms Harrison had developed neck stiffness and there was restriction of all neck movements with inability to place the chin on the chest or to move the neck sideways. In that entry there is also mention of a white cell count of 35,000 although there is nothing more about that fact. Also, it was noted that Ms Harrison was unable to keep her eyes open even with the lights dimmed.

Dr Griffiths states that this was a clear sign of photophobia in the presence of meningism.

The blood cultures taken by the GP on 9 January 2012 identified the presence of a Group A streptococci which is a common bacterial cause of adult meningitis.

Dr Griffiths noted that not only was an acutely unwell patient not seen by the doctor at the time of admission but, in fact, was not comprehensively medically assessed by Dr B until 2.40pm on 10 January, almost twenty hours after her admission and just prior to her transfer to Cairns. Ms Harrison's clinical deterioration was almost certainly evident at this time.

Dr Griffiths noted that:

- the white cell count of 35,000, the neutrophilia and their toxic granulation, suggesting a bacterial agent, were all known at the time of Ms Harrison's admission but were not, apparently, conveyed to Dr B. If Dr B had known this at the time of admission he might have commenced empirically, intravenous antibiotics at an earlier time rather than when he did which was almost 20 hours later.
- Nurse K knew about the elevated white cell count at 10.40pm on 9 January 2012 but seems to have been unaware of the clinical significance of it. There is no record of whether this information was passed to Dr B. Nurse K also was unaware, seemingly, of the significance of the neck stiffness and photophobia which she recorded. Those symptoms, along with persistent headache are the "holy trinity of meningitis". Dr B makes no mention of the nurse's findings the next morning. It is not clear whether he read her notes and whether she conveyed to him her findings.

- It must have been when Dr B reviewed Ms Harrison at about 2.40pm and when he believed that she had meningitis that he became aware of the pathology results which were advised to the GP at 8pm the night before.

At the time he wrote his report Dr Griffiths was of the opinion that Ms Harrison's death was clearly preventable and resulted from the delayed diagnosis and a series of failures to pass on relevant information.

Dr Griffiths stated:

> *"Whilst the Root Cause Analysis has clearly identified a number of issues relating to triage and admission procedures, and a need for more reliable transfer of clinical information about a deterioration in a patient's clinical status, it is also important that these be implemented, not just at Mossman Hospital, but in all circumstances involving admission of sick patients to health facilities in this state."*

Review by Professor Brown

Professor Brown reviewed the treatment and management of Ms Harrison at the Mossman Hospital.

He stated that Ms Harrison died of an uncommon condition which is recognized to carry a high mortality rate even in the best centres. Group A *Streptoccal* meningitis accounts for only 0.2 – 1% of overall meningitis cases. It is often fulminant with a high mortality rate in adults of 27% overall, particularly in females and even despite the provision of antibiotics.

Professor Brown disagreed with Dr Griffiths that Ms Harrison's death was "clearly preventable" as it was his opinion that, in light of the known severity of the infection, it was not possible to know whether, had antibiotics been administered to her on 9 January 2012, they would necessarily have averted the sudden deterioration the next day, which led to her death.

However, Professor Brown noted the following concerns with the operations of the Mossman ED at the time of the death of Ms Harrison:

- The severity of her condition was not recognized on the evening of 9 January 2013. She should have been triaged as Category 3 rather than 4 which would have required to have been reviewed by a doctor in 30 minutes;
- It is unclear what information was conveyed to Dr B by nurse K but given that it was recorded that Ms Harrison had a white cell count of 35,000, neck stiffness, photophobia and "looked unusual" she should have been seen immediately by a doctor;
- On the morning of 10 January 2012 when Dr B decided to leave Ms Harrison to sleep and review her later, he was still unaware of the white cell count and the notes that had been made overnight.

Professor Brown noted that when Dr B did examine Ms Harrison he was careful, thorough, diligent and made the correct diagnosis and management plan.

Review and Actions by GP

Ms Harrison's GP at Port Village Medical Centre reviewed the events surrounding the death of Ms Harrison and helpfully provided a comprehensive statement regarding his involvement and the subsequent actions of the Medical Centre.

At 10am on 10 January 2012, although it was his day off and he was out with his family, the GP phoned the Mossman Medical Practice to advise the on call doctor from the night before that Ms Harrison had been admitted to hospital.

The on call doctor was again contacted by QML at 3.26pm that day and advised that the positive blood cultures showed group A streptococcus. That doctor immediately called Mossman Hospital and passed on that information to a doctor there. At that time Ms Harrison was already being transferred to the Cairns Base Hospital.

At 7pm on 10 January 2012 the GP returned to his residence and logged in remotely to his pathology in-tray. He saw the markedly abnormal pathology results and rang Mossman Hospital immediately. He was told that Ms Harrison had been transferred to Cairns and phoned Cairns Base Hospital but was advised of Ms Harrison's acute deterioration.

At 7.24am on 11 January 2012 the Mossman Medical Practice received a further blood culture report from QML reporting that the gram positive cocci were sensitive to Amp-Amoxycillin, Penicillin, Cephalothin, Cerftiaxone and Clindamycin. The GP phoned the intensive care registrar at the Cairns Base Hospital and advised of the results. He was told that Ms Harrison's condition had deteriorated to the extent of possible brain stem death. He phoned back at 5.30pm that day and was advised that Ms Harrison's family were going to be advised that she had suffered the demise of her brain stem.

Mossman Medical Centre usually opens at 9am on weekdays whilst the Port Village Medical Centre opens at 8am. Telephones for Mossman Medical Centre are diverted to Port Village between 8am and 9am.

Inquiries made by the GP revealed that QML sent two facsimiles to the Mossman Medical Centre on 10 January – at 7.38am and 8.12am. When the first was sent both medical centres were closed. When the second was sent Port Village was open but Mossman was still closed. QML did not contact the on call doctor or the GP to advise of the results.

QML did phone the Mossman Medical Centre between 8am and 9am but that call was diverted to Port Village. The receptionist who answered the phone was told that a facsimile would be sent and it should be shown to a doctor. The facsimile was sent to Mossman instead of Port Village. As the receptionist had not had any contact from QML she placed the fax in the GP's in-tray as she did not realize the urgency of the matter.

As of 11 January 2012 any pathology reports faxed to the practice are immediately shown to either the requesting doctor or the first available doctor at the centre.

The Mossman Medical Centre advised QML of concerns that the GP was not advised of results by phone immediately. QML now have mobile telephone numbers for all doctors at the practice to facilitate better communication.

The GP stated that in January 2012 there was no easy way for a GP to get in contact with the admitting doctor at the hospital. Mossman Hospital now emails all local medical centres a monthly list of contact numbers at the Mossman Hospital.

The practice was provided with a direct telephone number to access the doctor on call however, the doctors continued to find that calls to that number were not responded to and were diverted to the reception line which was unattended out of hours.

In July 2014 the GP contacted the Director of Nursing at the Hospital and requested that the system be changed. The line is now diverted to the number of the doctor on call so that he or she can be contacted directly.

The Mossman Medical Centre changed its out of hours message to advise that the practice is closed but callers can ring the Port Village Medical Centre. This prevents callers being automatically diverted to Port Village without realizing that they have been diverted.

Aileen Morten

Ms Morten died at the Atherton Hospital. She was admitted to the hospital on 17 July 2012 but was discharged on 19 July 2012. At that time she was suffering from an undiagnosed infection. She was re-admitted on 21 July 2012 but died on 23 July 2012.

Ms Morten had a history of metastatic bowel cancer die to rectal adenocarcinoma, type two diabetes mellitis, hypertension, hearing impairment and hip osteoarthritis.

Chronology of Events from 17 to 23 July 2012

At 5.19pm on 17 March 2012 Ms Morten called Queensland Ambulance Service.

She reported abdominal pain with urinary problems due to "lack of flow." Paramedics took her to the Atherton Hospital.

On arrival at ED she was triaged by Registered Nurse R who noted that she had been brought in by ambulance, she was experiencing right iliac fossa pain since that afternoon and had been eating and drinking. R noted "no urinary problems or vomiting."

R took a set of observations at 5.50pm which revealed:

- Temperature of 37
- Pulse 78
- Respiratory rate 20
- Blood pressure 126/39
- Oxygen saturations 95% on room air

R did a dip stick urine test in the ED and noted "large blood and ++ protein" which indicated to R a possible urinary tract infection.

R allocated a triage category 3 which required Ms Morten to be seen by a doctor within 30 minutes.

Further observations were taken and recorded on an ADDS chart at 6.20pm:

- Temperature of 39.2
- Pulse 85
- Respiratory rate 24
- Blood pressure 126/60
- Oxygen saturations 94% on room air

The ADDS score, had it been calculated was 4. None of the total ADDS scores taken on 17 July were calculated on the chart.

Dr H saw Ms Morten at 6.45pm. The doctor noted that she had right upper quadrant abdominal pain and a low grade fever. Other observations were normal. A urine dipstick showed heavy blood and protein. The doctor considered that she could be experiencing new pain due to possible liver metastasis, possible gall bladder disease or the pain could be related to her right lung due to lung metastasis. The doctor noted that Ms Morten's "carer had an engagement today in another activity and this could be the reason for coming to hospital as he called the ambulance for her."

The doctor admitted Ms Morten and ordered blood cultures.

She was admitted to the ward at 7.25pm. Observations were taken overnight which remained about the same as those taken at 6.20pm. In relation to a number of those observations the nurses failed to calculate the total score on the chart. Ms Morten was given pain relief.

Ms Morten was seen by Dr K and Dr A at 9am on 18 July 2012. Dr K noted that she was afebrile, haemodynamically stable and feeling well. She reported mild right upper quadrant tenderness which Dr A attributed to potential liver metastases. Although the ED team reported that they had sent blood to the laboratory, as no results had been received, Dr K re-did the tests so that haematological and biochemical analysis could be performed.

Later that afternoon the blood results became available and indicated a white cell count of 14 and CRP of 103. Dr K compared those results with results from blood taken during her recent admission for pneumonia five days previously and saw that her white cell count had dropped but her CRP had not changed significantly. He considered that the infection markers were trending down.

At 9.30pm on 18 July 2012 Atherton Hospital was notified by Cairns Base Hospital pathology that "gram negative bacilli" were identified in the blood cultures. Registered Nurse M took that telephone call and recorded the information in Ms Morten's clinical notes. The nurse told the medical officer on duty in the ED of the results. That doctor made no orders and indicated that Ms Morten was to be reviewed in the morning by the medical officer. That doctor stated that he had no recollection of the call.

M stated that she expected to receive an order for antibiotics from that doctor and was surprised that she didn't but took no further action. She said that if that was to occur again she would phone the senior medical officer and advise that person of the results and that no antibiotics had been prescribed.

Ms Morten was not reviewed by a doctor the following morning and no doctor was made aware of the results that had been notified the night before. No observations were taken after 9am that day.

At 1.20pm it was noted that she had been visited by her carer and was hoping to go home that day.

It was also noted, "Bloods taken this am. Waiting results to be reviewed by Dr before discharge."

The next record was made at 5.15pm when nursing staff recorded that they had not seen Ms Morten since 2.15pm and could not find her on the ward and thought that she may have left the hospital.

Apparently, Ms Morten was located because, according to his statement, Dr K reviewed Ms Morten at 6pm on 19 July 2012. That time cannot be correct as the progress notes record that she was discharged at 5.30pm and his discharge summary was compiled at 5.30pm.

Dr K noted that she was "safe for discharge". He did not review the blood results before discharging Ms Morten. He stated that he mistakenly reviewed the blood results from her previous admission and therefore concluded that her white cell count was falling.

Dr K noted in regard to his review of Ms Morten, "Patient safe for discharge. Apologies for late informing of ward."

There is no record of any actual examination by the doctor. In the Discharge Summary that Dr K says he wrote at 5.30pm he noted that Ms Morten's observations were stable and that she was "completely well" and he was "happy to discharge her without antibiotics". This is patently incorrect and also inconsistent with the last observations that were taken which indicated a drop in her blood pressure and an increase in her pulse and the positive blood results.

Dr K stated that he was not aware of the notification by the laboratory at 9.30pm on 18 July 2012. He said that he believes the reasons he was unaware of the notification were:

- He had been very busy that day as the hospital was understaffed with medical officers;
- He considered that Ms Morten had been admitted for social reasons and was not expecting a positive result (it was noted by Dr H that she had been sent to hospital by her carer as he had other commitments on 17 March and could not care for her at home);
- He was not familiar with the Auslab pathology system which does not "red flag" adverse results having not worked for Qld Health before (the doctor was employed as a locum resident medical officer, covering for an intern for a period of two weeks in July 2012).

Ms Morten returned home and her health declined over the next few days and her breathing became laboured. At about 9pm on 21 July 2012 she was re-admitted to Atherton Hospital after being taken there by QAS.

She had a fever, was tachycardic (pulse 134) and hypotensive. She was assessed by a medical officer who noted the signs of septicaemia and that she was clearly unstable.

Ms Morten was admitted to the High Dependency Unit and prescribed antibiotics (Gentamicin and Ceftriaxone). The causative organism (E.coli) was identified on 22 July 2012 and, as it is resistant to Ceftriaxone, Trimethoprim was substituted.

Despite very large quantities of IV fluids, two units of blood and antibiotics, Ms Morten failed to improve and died in hospital at 2.45am on 23 July 2012.

Autopsy Results

An autopsy revealed that Ms Morten died from septicaemia due to Escherichia coli. At the time of her death she was suffering from left atrioventricular valve vegetation and pulmonary metastatic colonic adenocarcinoma.

Review by Queensland Health

Queensland Health investigated the circumstances surrounding the death of Ms Morten and compiled a "Root Cause Analysis" (RCA) report which identified:

- On admission there was no recognition of Ms Morten's clinical deterioration by nursing or medical staff;
- There was no recognition or treatment of a developing sepsis despite the medical officer receiving notification from the pathology staff that blood cultures were potentially going to be positive and a telephone call from the laboratory to nursing staff later in the evening advising of confirmed positive blood cultures;
- Ms Morten was discharged from hospital with untreated positive gram-ve bacilli blood cultures;
- The correct utilization of the ADDS tool was not embedded in workplace culture which led to the actions required for escalating care not being followed and a delay in recognizing the severity of the illness and appropriate treatment which contributed to a failure to provide timely care and to the patient dying;
- The current model of care did not ensure that all patients were assessed by a registered nurse; this led to variable supervision of less experienced staff and contributed to a failure in recognizing the severity of the illness and to the provision of appropriate and timely care to the patient.

The report recommended:

1. The hospital undertake bi-monthly audits of the ADDS (Adult Deterioration Detection System) tool and the recommendations from these audits are reviewed by the Health Service Clinical Care Review Committee for a period of two years;

2. The delivery of a Recognition and Management of the deteriorating patient one-day workshop for nursing and medical staff.

3. The hospital adopt a Team Nursing model of care that enables supervision of less experienced staff.

In March 2014 the Executive Director of Medical Services, CHHHS, advised as to the implementation of the recommendations contained in the RCA report as follows:

1. The hospital is undertaking quarterly audits of the ADDS tool;

2. One day RMDP workshops have commenced in 2014 at Atherton, Mareeba and Herberton Hospitals;

3. Pathology Queensland Cairns has implemented a new process for the notification of critical, urgent results being that the pathology staff member reporting the result will phone the hospital ward and speak to the on-call senior medical officer and if that person is not available, the most appropriate person, and the results will be logged into Auslab database;

4. It is intended to adopt a Team Nursing model of care that enables supervision of less experienced staff but to implement this significant changes in the workforce are required which will require extensive consultation with the key stakeholders, in particular the Queensland Nurses Union

Review by Forensic Medical Officer

Dr Griffiths, Forensic Medical Officer, reviewed the medical treatment and management of Ms Morten and identified the following concerns in relation to her treatment at the Atherton Hospital:

- Failing to action a positive ward test of urine which showed blood and protein in an elderly patient with a fever and failing to send that sample for culture;
- Failing to respond to the call from Cairns Base Hospital on 18 July 2012 advising that a gram negative organism had been identified;
- Discharging the patient the next day without any prescription for antibiotics and failing to suspect the presence of E.coli at this time.

Dr Griffiths stated:

> *"An 82 year old diabetic female, with a low grade fever, immunologically compromised by pre-existing metastatic disease, with a lot of blood and protein in her urine, has a urinary tract infection until proved otherwise."*

Trained nurses and doctors at the Atherton Hospital failed to consider this obvious and likely possibility and continued to do so despite the results of positive blood cultures which were available to them.

Dr Griffiths commented:

> *There was a failure by medical staff in this instance, to recognize the likely presence of a urinary tract infection in an elderly febrile diabetic patient who was immune-compromised, and act on the pathological results they were provided with in a timely fashion.*

Review by Professor Brown

Professor Brown noted that on 19 March 2012, the day Ms Morten was discharged, her vital signs had shown a significant drop in her blood pressure to 90/54 (it had been 124/60) and a rise in her pulse to 90 (which had been 82). Her temperature, which had been high on admission, had settled. There was a failure to appreciate the significance of those observations which may have resulted from the incorrect use of the ADDS charts.

Professor Brown also noted that the triage category of 3 given to Ms Morten on 21 July 2012 was inappropriate – her presentation warranted a category 2.

Implementation *of RCA Recommendations*

Dr Brown, Medical Superintendent, Hinterland Hub, CHHHS, provided a statement in November 2014 in which he gave an update of the actions undertaken by the CHHHS in relation to the following four RCA recommendations:

1. The workshop in relation to Recognition and Management of the Deteriorating Patient for nursing and medical staff – for all three deaths;
2. The delivery of the Triage Training Workshop for all staff working in rural ED's – Ms Harrison;
3. The process for relaying urgent laboratory results from the laboratory directly to the senior Medical Officer on duty (even if that person is not at the hospital); - Ms Morten
4. The adoption of a Team Nursing model of care to enable supervision of less experienced staff - Ms Morten.

Dr Brown provided the following information in relation to the above recommendations:

1. The RMDP workshops were planned and developed in 2013 and delivered throughout 2014 by Nurse Educators Rural Unit at the Herberton, Mareeba and Atherton hospitals. Staff from other hospitals in the Hub were invited to attend. The RMDP workshops will continue to be delivered one month per year.
2. Triage training is offered four times per year either at the Atherton or Mareeba Hospital and Mossman Hospital staff are able to attend – if staffing numbers at Mossman Hospital are sufficient, Triage Training is offered there.
3. Pathology Queensland has developed a new process whereby staff are told to inform the senior medical officer on duty of all positive results. Pathology Queensland advised Dr Brown that they had been auditing this process and would audit again on 6 November 2014.
4. A Team Nursing model of care commenced for the Atherton Hospital on 7 July 2014. The Nurse Unit Manager was to conduct a review of the model in November 2014.

Dr Brown stated that further quality improvements were undertaken in the Hub by the CHHHS:

1. Increase in number of employed medical practitioners to assist in reducing fatigue, overtime and after hours call ins:

   a. Atherton and Mareeba Hospitals are classified as Level 3 hospitals and Mossman is a Level 2 hospital. The Atherton and Mareeba Hospitals, once fully recruited, will each have 7.4 full time senior medical officers and 6.6 principal house officers. Two SMO's will be rostered at night and three at all times during the day.

   b. Mossman Hospital staffing levels have been increased and the current model comprises 4 SMOs and 4 PHOs.

   c. In all models there will always be a designated PHO in the hospital overnight with an SMO on standby call.

2. Every PHO that rotates from Cairns to Mareeba, Atherton or Mossman Hospital undergoes an Advanced Rural Clinical Skills (ARCS) course over 2 days which includes management of acute presentations.

3. MET call protocols are in place to respond to the acutely deteriorating patient. There is always an SMO with up to date Advanced Life Support skills within 10 minutes of the hospitals.

4. The nurses have conducted numerous ADDS chart audits to ensure they comply with the proper documentation and reporting requirements.

5. Audits on medical clinical handovers have been conducted.

6. Ryan's Rule has been implemented since 23 October 2014. Ryan's Rule involves escalation processes so that a worried patient or relative of a patient can get the clinical attention they deem is necessary if they believe their needs are not being met.

The inquest

Pre-inquest directions hearings were held on 28 July 2014 and 3 November 2014.

The inquest commenced on 20 November 2014. A total of 59 exhibits were admitted into evidence. Thirteen witnesses were called to give evidence.

The evidence – Graeme Gulliver

Registered Nurse CB

CB is still working at Mossman Hospital. She was the only registered nurse on shift on 18 March 2012 when Mr Gulliver presented to the hospital. In her opinion, staffing at the Mossman Hospital was inadequate – there ought to be a designated triaging

nurse on duty during the day and a medical officer at the hospital overnight instead of on call.

CB said that the nurses are reluctant to wake the on-call doctor at night to come in to see a patient. As a result some patients are kept in the ED rather than being admitted. This is as a result of the direction that all patients who are admitted are to be seen in person by a doctor. If there is no doctor at the hospital the nurses keep the patient in the ED until a doctor comes in the next day.

CB said that she was not formally advised of the direction that a doctor is to see the patient on admission but found the document on a desk at the hospital and so became aware of it.

If the ADDS score indicates that the patient needs to see a doctor then a nurse will phone the on call doctor and the doctor decides whether to attend the hospital to see the patient.

Since Mr Gulliver's death CB has attended training in relation to ADDS charts and triaging. Other changes are that clinical handovers are always conducted at the patient's bedside and referring GP's always contact the on duty doctor directly about the patient.

Doctor Y

Dr Y said that he did not see the pathology results until after he had seen Mr Gulliver on 18 March. He could not recall being shown a hand written note by Mr Gulliver or Ms Heimann. He admitted however, that he would have read the triage notes and so would have known of them.

He said that he was told that Mr Gulliver had blood streaked sputum on two occasions. He did not consider that a "red flag". Although it is a clinically relevant symptom, considering that Mr Gulliver's chest sounded clear he did not think it was a relevant symptom. He thought that it could have been caused by smoking (a broken capillary from coughing) or an upper respiratory tract infection. He knew that it could be a symptom of pneumonia but did not consider that possibility as Mr Gulliver looked well. He thought that the GP would follow up.

Dr Y said that he now knows that patients with pneumonia can look well but he wasn't aware of that in March 2012.

Dr Y said that if Mr Gulliver came to see him now with the same symptoms he would order a chest x-ray and he would treat the coughing of blood as very significant and possibly indicative of pneumonia.

If he had ordered a chest x-ray on 18 March 2012 and there were abnormalities he would have started Mr Gulliver on antibiotics. He would assess whether he should be admitted to hospital on the "Pneumonia Severity Index".

Dr Y said that he is now aware that an elevated white cell count is indicative of infection and neutrophilia indicates a bacterial infection. He said that, in retrospect he should have ordered a chest x-ray rather than send Mr Gulliver back to his GP and then admitted him and prescribed IV antibiotics.

Dr Y said that he took into account that the radiographer was on-call at that time rather than present at the hospital. He said that he was more reluctant to order an x-ray when

the radiographer was on-call. He said that even when he has admitted a patient who requires an x-ray he has waited until the radiographer is present at the hospital rather than call that person in to do the x-ray.

Dr Y said that he was often on call overnight and then rostered on to work at the hospital the next day. He said that the hours he was expected to work at Mossman Hospital were not sustainable over a lengthy period of time.

Dr Y said that there should be a doctor at the hospital during the night. This would result in less working hours for all the doctors and also better patient care.

Dr Y said that it remained his understanding that coughing of blood can sometimes be insignificant – it can sometimes result from vomiting.

Registered Nurse KB

KB is now employed at a nursing home in Western Australia. She left the Mossman Hospital in June 2013.

KB said that she was the triage nurse on night shift on 17 March 2012 but she cannot recall receiving a telephone call from a GP about Mr Gulliver.

On 20 March 2012 the paramedics who brought Mr Gulliver to the hospital told KB that he had been coughing up blood prior to coming to hospital. KB agreed that she didn't note that Mr Gulliver had been coughing up blood in any of the records she made. She cannot recall why she failed to do so. She said it was her understanding that severe coughing can result in bleeding from the throat.

KB agreed that if a patient is coughing up blood and is on oxygen that indicates something serious but said that when Mr Gulliver arrived at hospital he wasn't coughing.

KB said that when Mr Gulliver was admitted she quickly scanned the previous notes but must have missed the pathology results. If she had seen those she would have relayed them to Dr B.

She said that she looked at the blood in the sputum sample and showed it to Clinical Nurse R who said that it could be from coughing. She relied on R's experience and judgement. She put the jar in a specimen bag and left it on the ward.

She said that Mr Gulliver did not look unwell at any time that she saw him.

Since Mr Gulliver's death there is a direction that any patient who is admitted is to be seen by a doctor. She had received training on the ADDS chart and on triaging.

KB said that if she saw blood in a patient's sputum she would now ensure that the patient was seen by a doctor immediately.

Enrolled Nurse F

F still works at Mossman Hospital. It remains the case that there is no doctor at the hospital overnight.

In the middle of the night she saw KB and R talking about the sputum specimen. She looked at it and thought there was a large amount of blood in the sputum specimen. She made that comment to R who said that could be from vomiting.

The nurses are reluctant to contact the on-call doctor at night unless the matter is really urgent.

In hindsight she thinks that maybe a doctor should have been called to see Mr Gulliver overnight. She thought that Mr Gulliver looked ill on the morning of 20 March 2012 but relied on R's judgement when she said he would be OK until the doctor arrived.

Since Mr Gulliver's death she has undertaken training in relation to ADDS charts and RMDP. Nurses are now encouraged to contact the on-call doctor when the ADDS score requires it and to remind the doctors of their obligation to attend the hospital. F now feels that she could escalate a matter over the registered nurse on duty but at the time of Mr Gulliver's death she did not feel that she could do so.

Nurse W

W is still working at Mossman Hospital as a registered nurse. She first saw Mr Gulliver between 7.15 and 7.30am on 20 March 2012 when she did a first round of her patients. She received a handover from R prior to seeing him. R said that Mr Gulliver had been admitted overnight, had not seen a doctor, had been into ED a couple of times, that he may have dengue fever or a viral illness, that a sputum specimen obtained overnight had been blood-stained.

W said that it was not unusual at that time for a patient to be admitted to the hospital overnight but not see a doctor until the morning. There is still no doctor present at the hospital overnight. There was a period of trialling having a doctor present at the hospital overnight. That trial began in late 2013 and ended in January 2014. It was definitely preferable to have a doctor to see the patient instead of having to wait for the doctor to arrive, "if they do decide to come."

W said that it happens quite frequently that a doctor will decide not to attend the hospital to see a patient when they have been telephoned by a nurse out of hours. If a doctor does not attend and the nurse feels that the patient needs to see a doctor the nurse can escalate the matter to the Director of Nursing or by calling the Cairns Base Hospital.

W said that when she saw Mr Gulliver on the morning of 20 March 2012 he looked really unwell. He was grey (which could indicate blood loss from internal bleeding) and had sunken eyes. As he was sleeping she didn't wake him but counted his respirations. She woke him up when he was still asleep after breakfast, at about 8.30am, and took observations. The ADDS chart score was 5 so she called Dr B immediately.

W said that she didn't realise how ill Mr Gulliver was from the information she had been given at the handover. She said that he would have looked really unwell before she started her shift.

Later, after she made the entry in the notes at 1.10pm W looked at the sputum sample which she found in the doctor's room in ED. She made a separate note as she thought it concerning that she had been told by R that it was blood-stained when it actually contained 20 to 30ml of frank blood. The jar contained bright blood – it did not contain specks of blood in sputum which might be thought to have been caused by severe

coughing. W looked for R to discuss the matter with her but she had already left the hospital.

She wrote the note about the sample on a separate piece of paper and put it with Mr Gulliver's records but later found that the note she wrote had disappeared from the records.

Since Mr Gulliver's death W has undertaken training in RMDP, ADDS and CEWT (the Children's Early Warning Tool i.e. ADDS for children).

Doctor B

Dr B left Mossman Hospital in February 2013 principally due to the on call hours. He was on call 3 or 4 shifts per fortnight and was telephoned regularly during those nights. It was unsustainable and he was too tired to properly care for patients during the day when he had been woken up the night before he was on duty.

It was normal for him to be on call during the night and then on duty the next day.

Dr B said that if Mr Gulliver had had a chest x-ray on 18 March 2012 and it had shown abnormalities then he would have ordered further tests to be undertaken and more blood taken. If those tests had resulted in more concerning results Mr Gulliver may have been transferred to Cairns.

Dr B said that he was not told by KB that Mr Gulliver had been coughing up a lot of blood in the shower prior to calling QAS. If he had been told that he would have immediately gone to the hospital to review Mr Gulliver. When he received the call he was in the doctor's accommodation about three minutes away from the hospital. If he had been told that the sputum specimen contained 20 to 30ml frank blood he would also have gone immediately to the hospital.

Dr B was reassured by the fact that Dr Y had seen Mr Gulliver on the 18 March 2012.

Doctor Griffiths

Dr Griffiths said that there was a lost window of opportunity to commence empirical treatment on 18 March 2012 i.e. prior to the complete results of the blood tests and on the information available to Dr Y, Mr Gulliver should have been commenced on intravenous broad spectrum antibiotics which would have covered numerous types of infections.

Dr Y should have recognised on 18 March 2012 that the results indicated that Mr Gulliver was suffering from a bacterial infection rather than a viral infection. The symptoms were clearly indicative of pneumonia and Dr Y should have ordered a chest x-ray and IV antibiotics. Viral illnesses do not cause a patient to cough blood.

Dr Griffiths said it was "extraordinary" that Dr Y did not order a chest x-ray. It is a non-invasive, basic and fundamental investigation. Dr Y said that Mr Gulliver looked well but a doctor should know that the way a patient looks has to be considered in the context of their symptoms and pathology.

Although Mr Gulliver had a fulminant form of Leptospirosos and may have succumbed even if provided with the optimal treatment, had he been admitted and had a chest x-ray and was treated with IV antibiotics for pneumonia on 18 March 2012 it is possible that the treatment would have been effective against the Leptospirosis. It is definitely

the case that the opportunity to provide that treatment was lost because Dr Y did not treat Mr Gulliver in the appropriate way.

Dr Griffiths had no doubt that a chest x-ray taken on 18 March 2012 would have indicated abnormalities in Mr Gulliver's lungs which would have indicated pneumonia. That indication would then have required admission to hospital, IV fluids, IV and oral antibiotics and further blood tests which would have revealed, over the course of time, the presence of Leptospirosis.

Dr Griffiths said that he could not imagine why a doctor would say that coughing up blood could be due to smoking as there was no reason to think that any of Mr Gulliver's symptoms were due to smoking.

Dr Griffiths said that the fact that Mr Gulliver's oxygen saturations were 100% on 18 March 2012 should not exclude a consideration of pneumonia. The neutrophilia, the white cell count, the elevated CRP and the coughing of blood should have indicated to Dr Y that a chest x-ray was required.

Dr Griffiths said that he would expect every clinician (every doctor and nurse) to recognise the signs of a bacterial infection in Mr Gulliver's blood results. Dr Griffiths would not have allowed Mr Gulliver to leave the hospital on 18 March and would not have referred him back to his GP for treatment.

In relation to 20 March 2012, Dr Griffiths said that Mr Gulliver should have been seen by a doctor on his admission to hospital. That doctor could have reviewed him and made a management plan.

Professor Brown

The Professor stated that, in his opinion, Mr Gulliver died from septicaemia caused by severe or late stage leptospirosis. The autopsy revealed evidence of renal failure, liver dysfunction and pulmonary haemorrhage.

Professor Brown said that it is unlikely that the provision of antibiotics at an early stage would have prevented Mr Gulliver's death.

Leptospirosis has an initial stage when the infection is characterised by the organism in the blood stream. At that stage there are very non-specific symptoms. At the 4 to 5 day stage the illness changes and the damage done is due to toxin production or the immune system reaction. This is known as severe or late stage Leptopspirosis. Some experts say that antibiotics are useless at this stage of the disease.

Once Mr Gulliver had started coughing blood it is unlikely that antibiotics would have had any effect on the disease. However, there is other treatment that could have been provided for severe Leptospirosos. Supportive treatment at a hospital which could have provided it, such as the Cairns Base Hospital, would have included oxygen support, IV fluids, dialysis and ventilation.

On 18 March 2012 the symptoms that Mr Gulliver presented with, in particular the coughing of blood, should have rung alarm bells. It should have been a "massive red flag" to Dr Y who should have, at least, ordered a chest x-ray and admitted Mr Gulliver to hospital.

Dr Y, in sending Mr Gulliver home without a chest x-ray, committed an error of judgement. Professor Brown would expect that a doctor of his experience would have recognised the symptoms of a bacterial infection and the treatment that was required.

Professor Brown would have ordered an x-ray even if he had to call a radiographer in to the hospital as the symptoms on 18 March 2012 indicated pneumonia. A patient with pneumonia can look well – the diagnosis requires a consideration of the history, vital signs and a chest x-ray (an examination with a stethoscope is not sufficient or accurate). It is likely that a chest x-ray done on 18 March 2012 would have shown abnormalities.

Professor Brown said that less experienced doctors often believe that coughing can cause bleeding but this belief is incorrect.

Professor Brown said that had the appropriate treatment been provided on 18 March 2012 a chest x-ray would have shown abnormalities and that would have led to intravenous antibiotics. It is likely that Mr Gulliver, already having late stage Leptospirosos would have continued to decline. It is likely that he would have been transferred to the Cairns Base Hospital on the morning of 20 March 2012 but it is unlikely that treatment there could have prevented the massive pulmonary haemorrhage he suffered that afternoon.

Professor Brown said that Mr Gulliver should have been given a triage category 3 when he presented to the hospital in the early hours of 20 March 2012 which would have required him to have been seen by a doctor within 30 minutes.

The evidence – Joanne Harrison

Doctor Griffiths

Dr Griffiths said, in his opinion, a patient sick enough to be admitted to a hospital should be seen by a doctor. That doctor could then review the pathology results and make a management plan for the patient. If Ms Harrison had been seen by a doctor on her admission and that doctor had reviewed her pathology results she might have been commenced on intravenous antibiotics.

The white cell count should have indicated to a doctor reviewing Ms Harrison that a broad spectrum antibiotic should be prescribed.

The fact that a nurse noted that Ms Harrison had neck stiffness, that the lights had to be turned down at her bed and the indications of a bacterial infection (white cell count) should have "sounded alarm bells". Ms Harrison should, at the time that information was known, have been treated as though she had meningitis until it was proven otherwise.

Dr Griffiths said that, having considered all of the information available, including the circumstances of Ms Harrison's rapid decline and deterioration, he was unable to say whether, had she received intravenous antibiotics on the night of her admission to hospital, she would have survived. Certainly, the continuation of cephalexin would not have affected the outcome – an intravenous antibiotic was required to have made any possible difference.

Dr Griffiths stated that Ms Harrison's management by her GP was thorough and appropriate. Dr Griffiths agreed, taking into account that that there was no evidence

that NW was aware of the elevated white cell count, the triage category of 4 which was allocated by him at the time of admission was appropriate.

Professor Brown

Professor Brown said that fever, headache, photophobia and neck stiffness are signs of meningitis (although neck stiffness, in his opinion, was not a reliable indicator). The real key, however, to diagnosing meningitis is whether the patient looks ill.

At 10.45pm the nurse recorded that Ms Harrison had a white cell count of 35,000, neck stiffness, photophobia and a headache with a score of 6/10. The nurse who noted that information would have been considering that Ms Harrison may have had meningitis. If the nurse relayed that information to the doctor he should have ordered antibiotics and gone immediately to the hospital to see Ms Harrison.

Group A streptococcus behaves in a fulminant way i.e. it causes sudden and dramatic changes and deterioration in the patient. As such, Professor Brown could not say that the administration of intravenous antibiotics on the night of 9 January 2012 would have changed the outcome for Ms Harrison. However, it is possible that the failure to administer such treatment may have contributed to her death.

Although in his statement Professor Brown opined that NW should have given Ms Harrison a triage category 3 on her admission, in his evidence, and in light of the fact that NW was apparently unaware of the elevated white cell count, he stated that the triage category 4 was appropriate.

Doctor B

Doctor B stated that at the time of Ms Harrison's death he was rostered on day shift, then on call overnight and then on day shift again the next morning.

He said that he wasn't told by nurse K, when she rang him at about 10.50pm on 9 January 2012 that Ms Harrison had neck stiffness.

When he saw Ms Harrison the next morning he looked at the chart at the end of her bed but did not see the notes made by K the previous night. He said he would have seen those notes when he made his notes in the chart after seeing Ms Harrison. He said that, had he seen the notes prior to seeing Ms Harrison at 8.30am he may have reviewed her more thoroughly as he would have been aware of the white cell count and the fact that she had been ill the day prior and referred by her GP.

The Implementation of the RCA Recommendations

Doctor Brown

Dr Brown said that none of the doctors employed at the Hub had attended the RMDP workshop as required by the RCA recommendation, and which recommendation was said to have been implemented. He said that they "dropped the ball" in relation to that recommendation in regards to doctors. However, all staff are required to attend the MET call training.

In relation to the relaying of pathology results, Dr Brown said that the laboratory would have to phone the after hours emergency department to be able to contact the SMO. He said that this could be a problem and it was an aspect that could be improved.

In relation to doctor staffing, Dr Brown stated that although it is planned to increase doctor numbers to those set out in his statement, that has not been put in place as yet as the extra doctors have not yet been recruited.

Atherton Hospital is almost fully recruited and has been fully staffed with locums since June or July 2014.

The budget for Mossman Hospital staff increases has now been approved and they are recruiting doctors. Currently there are three SMOs and one or two Principal House Officers (PHOs). There is still no doctor at the hospital overnight but it is intended that this be remedied by 2015. At that time an SMO will be only ten minutes away and there will be a PHO at the hospital overnight. That PHO will have at least three years post graduate experience.

Dr Brown said that he was unaware that the direction that was issued that all patients who are admitted has, at least in some instances, led to patients being kept in ED rather than being admitted to the ward when the on-call doctor was unable or unwilling to attend the hospital. He said that was unacceptable.

Dr Brown said that it was his understanding that the Director of Nursing was looking into the possibility of a permanent triage nurse being appointed at Mossman Hospital but that this would have to be escalated through the usual channels.

The ARCS training, which is offered to all PHO's who rotate from Cairns to the rural hospitals, includes information on RMDP.

Dr Brown was asked whether there were any procedures in place to address the issue of an on-call doctor refusing to attend the hospital when called to do so by a nurse. He said that there is a policy of escalation – the nurse contacts the Director of Nursing who contacts the Medical Superintendent. He said that there had recently been two such cases. They both related to locum doctors. One of those doctors had been counselled and one had been dismissed.

Dr Brown said that it was very difficult to recruit senior medical officers to rural hospitals. The workforce was a big issue for CHHHS. He said that the staff levels set out in his statement should continue into the future and that Queensland Health should maintain funding for those staff levels.

Brian Bates

Mr Bates is the Quality Officer, Clinical Audits, Quality and Patient Safety Services, CHHHS.

Mr Bates stated that ADDS charts audits are conducted quarterly throughout CHHHS, except for Atherton Hospital where they are conducted bi-monthly. Clinical Handover audits are scheduled monthly.

The audit results revealed that the ADDS tool is embedded at hospitals in the Hub. Whilst there have been some minor deficiencies recognized, as one would expect, the overall picture is one of a high level of compliance.

Nurse Cram

Shaun Cram is the Nurse Educator, Mossman Hospital. He provided information at the inquest in relation to nurse training. Mr Cram said that triage training is a whole

day workshop currently offered at the Cairns ED. ADDS training is a one hour session provided by him on an annual basis. COMPASS training is an online presentation accessed on Qld Health website.

Mr Cram said that Nurse Education hit a devastating hiatus due to the district restructure and was essentially paralysed for the best part of 2013. The impact of the restructure came into effect on 1 July 2013. Prior to the restructure he was a Nurse Educator and Staff Development Officer with a responsibility for the learning and development of nine nursing staff. His role was changed and the Staff Development component was removed. Since 1 July 2013 the nine nursing staff have no direct support in their learning and development. He believes that this constitutes a significant risk to patient safety and care.

Submissions of counsel

Ms Mellifont QC submitted that the internal and external reviews and the inquest into the three deaths had highlighted failures in the system. Whilst some of those had been addressed, others remained to be addressed.

In relation to possible recommendations arising from the inquest, Ms Mellifont submitted that the following recommendations be made:

1. The full implementation of the proposed workforce model at Mossman Hospital as soon as possible and continuation of those levels, with reports to be made by the CHHHS to the State Coroner, annually for 5 years, with the first such report to be delivered by 28 February 2015.

2. CHHHS ensure that there is readily accessible to pathology testing laboratories and local General Practitioners and Medical Centres within the CHHHS, a telephone number for the Emergency Department for the relevant hospital/s through which the caller is able to be put through to the on duty medical officer.

3. Queensland Health educate its clinicians (doctors and nurses) as to the importance of acting upon haemoptysis, and the importance of not discounting haemoptysis as being likely due to a burst blood vessel through coughing. Queensland Health appraise itself of the evidence of Professor Brown given in this case of what he considers to be a misconception held by a number of clinicians that blood in sputum can be readily ascribed to that cause.

4. CHHHS consider funding a full time radiographer at Mossman Hospital. Until such time as a full time radiographer is in place at Mossman Hospital that the CHHHS put in place guidelines that if doctors form the view that an X-ray would be done if a radiographer were in the hospital, that patients are not to be treated differently merely because the call for having an X-ray done arises at a time when a radiographer is not on duty. Put another way, if an Xray is called for, then it should be done whether or not that requires calling a radiographer in.

5. Funding for a nurse educator for the Hinterland Hub be urgently reconsidered.

6. Recommendations made in the three Root Cause Analysis reports be implemented as soon as possible to the extent that they have not been.

7. Queensland Health take steps to ensure that the ADDS tool is embedded within the CHHHS.

8. CHHS to report to the office of the State Coroner by 30 July 2015 as to the implementation of such recommendations 1 to 7, inclusive.

9. Each of the Australian College of Rural and Remote Medicine, the Australian College of General Practitioners, and the Australian College of Nursing consider disseminating information to their members as to the importance of acting upon haemoptysis, and the importance of not discounting haemoptysis as being likely due to a burst blood vessel through coughing. The Colleges appraise themselves of the evidence of Professor Brown given in this case of what he considers to be a misconception held by a number of clinicians that blood in sputum can be readily ascribed to that cause.

10. The Medical Board of Australia (Queensland Office) and the Nursing Board consider disseminating information to their members the importance of acting upon haemoptysis, and the importance of not discounting haemoptysis as being likely due to a burst blood vessel through coughing. The Boards appraise themselves of the evidence of Professor Brown given in this case of what he considers to be a misconception held by a number of clinicians that blood in sputum can be readily ascribed to that cause.

In relation to the above, Ms Gallagher submitted:

1. Any recommendation should not include reporting to the Office of the State Coroner.

2. The relevant steps have already been taken.

3. The Patient Safety Unit of Qld Health will issue a state-wide communique to all hospitals and health services to share the relevant evidence adduced at the inquest.

4. The CHHHS will consider employing a full time radiographer as part of a review of radiographers employed by the service.

5. The reduction in training referred to by Mr Cramm applied to doctors but not nurses.

6. The RCA recommendations have been implemented to the extent that they were required to be.

7. The ADDS tool is embedded within CHHHS.

8. As above.

9. No submission.

10. No submission.

Ms Robb submitted that nursing staff and patients of Mossman Hospital would benefit from having a doctor present at the hospital at all times. Ms Robb submitted that

consideration should also be given to having a full time triage nurse on duty during the day at Mossman Hospital.

Ms Watson adopted, in their entirety, the submissions of Ms Mellifont QC, including her submissions as to recommendations.

Comments, Recommendations and Findings

The scope of the Coroner's inquiry and findings

An inquest is not a trial between opposing parties but an inquiry into a death. The scope of an inquest goes beyond merely establishing the medical cause of death.

The focus is on discovering what happened; not on ascribing guilt, attributing blame or apportioning liability. The purpose is to inform the family and the public of how the death occurred and, in appropriate cases, with a view to reducing the likelihood of similar deaths.

As a result, a coroner can make preventive recommendations concerning public health or safety, the administration of justice or ways to prevent deaths from happening in similar circumstances in future.

A coroner must not include in the findings or any comments or recommendations, statements that a person is or may be guilty of an offence or is or may be civilly liable.

Proceedings in a coroner's court are not bound by the rules of evidence. That does not mean that any and every piece of information however unreliable will be admitted into evidence and acted upon. However, it does give a coroner greater scope to receive information that may not be admissible in other proceedings and to have regard to its origin or source when determining what weight should be given to the information.

A coroner should apply the civil standard of proof, namely the balance of probabilities. However the more significant the issue to be determined, the more serious an allegation or the more inherently unlikely an occurrence, then the clearer and more persuasive the evidence needs to be for a coroner to be sufficiently satisfied it has been proven.

If, from information obtained at an inquest or during the investigation, a coroner reasonably suspects a person has committed an offence, the coroner must give the information to the Director of Public Prosecutions in the case of an indictable offence and, in the case of any other offence, the relevant department. A coroner may also refer a matter to the Criminal Misconduct Commission or a relevant disciplinary body.

Comments – Gulliver

On 17 March 2012 Mr Gulliver's GP phoned the hospital and told the triage nurse, KB, that Mr Gulliver would be presenting to the hospital and gave her his details. KB failed to make a note of that call and so when Dr Y saw Mr Gulliver the next day he was unaware of that information.

Mr Gulliver was very unwell when he presented to the Mossman Hospital on 18 March 2012. It is very likely that he was already suffering from late stage Leptospirosis. Instead of ordering the chest x-ray that his symptoms and blood results dictated Dr Y sent him home with advice that he should return to the GP.

This decision by Dr Y and his failure to undertake even the most basic investigation in the face of clear and unequivocal evidence that Mr Gulliver was suffering from a bacterial infection has been described by the doctors who gave evidence at the inquest as "extraordinary" and "inexplicable". Those doctors said that Dr Y, and indeed any clinician, should have identified that Mr Gulliver was suffering from a bacterial infection rather than a viral infection.

A chest x-ray taken on 18 March 2012 would have indicated abnormalities which should have led to Mr Gulliver being admitted to hospital and further investigations being undertaken. Those further investigations may have resulted in recognition of the seriousness of Mr Gulliver's illness and the need for him to be transferred to the Cairns Base Hospital where, even though IV antibiotics may not have assisted, he could have been provided with the supportive treatment that his condition required.

Dr Y, however, sent Mr Gulliver home with no plan for any treatment and advised him to see his GP. Mr Gulliver had already seen his GP who had referred him to the hospital because of his very concerning blood results. It is not surprising that Mr Gulliver saw no point in revisiting the hospital when his condition did not improve. He was eventually persuaded to do so by Ms Heimann late on the night of 20 March 2012.

The paramedics who took Mr Gulliver to hospital on the night of 20 March 2012 told the admitting nurse, KB, that he had been coughing up blood. She failed to make any record of that significant fact and triaged him at a lower level than his symptoms and history required. Had she allocated the correct category of 2 it would have required Mr Gulliver to have been seen by a doctor in 10 minutes. KB also failed to read all of the notes from Mr Gulliver's presentation on 18 March 2012.

At 1am KB took Mr Gulliver's observations and recorded them on the ADDS chart – she didn't calculate the score – had she done so it would have indicated a score of 9 which indicates a medical emergency. For a score greater than 8 the ADDS tool advises a clinician to:

- Initiate emergency call
- Registrar to ensure consultant is notified
- If patient must leave ward area, registrar and nurse must accompany patient.

Rather than call a doctor at that time KB decided to wait ten minutes and take further observations. Those observations, taken at 1.10am, resulted in an ADDS score of 7 – again a MET call was required.

KB did not calculate the ADDS scores but called Dr B. She later realised that the ADDS score had required a MET call but decided she had taken sufficient action by calling the doctor. An ADDS score of 7 required KB to:

- Notify team leader
- Request registrar to review patient within 30 minutes, ward doctor to attend
- Registrar to ensure consultant is notified
- Half hourly observations (or more frequently if indicated)
- If not review within 30 minutes, or if concerned, initiate emergency call
- If patient must leave ward area, doctor and nurse must accompany patient

KB took none of the required actions.

KB phoned the doctor on call, Dr B after she took observations at 1.10am. She told him that Mr Gulliver had coughed up blood prior to attending hospital. Dr B questioned KB as to the amount of blood that Mr Gulliver had been coughing up and she said that there was a little bit of blood in his sputum. Dr B considered that blood stained sputum could result from an upper respiratory tract infection or from damage sustained from vigorous coughing.

It is not clear why KB told Dr B that Mr Gulliver had only, “a little bit of blood” in his sputum. She had been told by QAS that he had been coughing up blood. Ms Heimann saw Mr Gulliver coughing up significant quantities of blood. There is no reason to believe that she did not relay that important fact to KB. KB said that Mr Gulliver was not coughing when she saw him so she had not seen the blood for herself.

The fact that Dr B did not comprehend the seriousness of Mr Gulliver’s illness when he was contacted by KB clearly demonstrates the need to have a doctor present at Mossman hospital at all times. Rather than attend at the hospital, as was required by Mr Gulliver’s presenting symptoms, history and ADDS score, Dr B gave directions that Mr Gulliver was to be admitted and given fluids and oral antibiotics and said he would see him in the morning.

KB followed Dr B’s instructions and took Mr Gulliver to the ward and did a handover to R.

Nurse F saw Mr Gulliver shortly after he arrived on the ward and she thought that he looked unwell and she was concerned about the amount of blood in the specimen jar. She asked R about it and R said that it was from vomiting. F checked on Mr Gulliver at about 1.50am and he was unsettled, uncomfortable, nauseous, restless and had vomited. F told R that she was concerned about Mr Gulliver and asked her to check on him. R told her shortly afterwards that she had taken observations and Mr Gulliver would be fine until the morning. There is no note of those observations in Mr Gulliver’s records.

No further observations were taken until KB took them at 3am although the ADDS score at 1.10am required at least half hourly observations. At 3am KB saw Mr Gulliver vomit.

At 4am KB recorded that Mr Gulliver had vomited 20ml of green fluid and at 5am she recorded that Mr Gulliver had vomited 50 ml of green fluid.

KB stated that she did not see Mr Gulliver after 3am and the notes she wrote at 4am and 5am related to her review of him at 3am and her observations of him vomiting then. This cannot be correct. She gives no reason as to why she recorded notes twice, an hour apart, in relation to her 3am observations. Further the note at 5am provides different details in relation to the amount of vomit.

I find that KB saw Mr Gulliver at 3am, 4am and 5am and on each occasion he had vomited.

When observations were taken at 6am the ADDS score was 4. A score of 4 requires the team leader to be notified, the patient to be seen by a doctor within 30 minutes and hourly observations. If the patient is not reviewed within 30 minutes the nurse is required to escalate the matter. In the column which requires the nurse to note the action taken, the following note was made, “Pt off O2 whilst vomitting (sic) hence SaO2 ↓ put back on O2 NP.”

The misspelling and handwriting indicates this note was written by KB. She did not include this information in her statement.

Neither KB nor R took any of the actions required by the 6am ADDS score of 4.

During the night whilst in the care of KB and R, Mr Gulliver had continued to cough blood. He coughed a large amount of blood (20 to 30ml) into a specimen jar. KB and R both saw that blood. Other nurses who saw the blood, W and F, were concerned by the specimen. They considered that it was a large amount of blood and that it was bright, frank blood. Neither R nor KB advised the doctor of this significant development nor did they note in the records, at any time during the night, that Mr Gulliver was coughing up blood or that he had done so prior to coming to hospital.

W was so concerned about the blood in the specimen jar and the fact that it had been ignored that she made a note on a separate sheet and placed it with Mr Gulliver's records. Concerningly, that document disappeared from the records before inquest.

F saw that Mr Gulliver looked unwell and was concerned about him at 1.50am. W observed when she started work that Mr Gulliver looked very unwell. He must have looked unwell during the night when he was in the care of KB and R. Despite that and regardless of his continued vomiting and coughing blood during the night and his ADDS score of 4 at 6am, they failed to record those symptoms or to take any action, deciding to do nothing until the doctor arrived. Further, R failed, at handover, to advise W of the severity of Mr Gulliver's condition leading to W leaving him asleep until after 8.30am.

Conclusions

Mr Gulliver did not receive appropriate treatment on his presentation to the Mossman Hospital on 18 March 2012. Dr Y should have identified that Mr Gulliver was suffering from a bacterial infection and given his other symptoms and history, suspected pneumonia and ordered a chest x-ray and further blood tests.

He should have then taken appropriate action based on the results of the x-ray. He did nothing and referred Mr Gulliver back to the GP who had sent him to the hospital for treatment.

Mr Gulliver should have been seen by a doctor on his presentation to Mossman Hospital on 20 March 2012. His triage score indicated he should have been reviewed by a doctor within 30 minutes. He was seen by a doctor over eight hours later.

Whether an examination by a doctor at that point and appropriate treatment administered immediately, including his immediate transfer to Cairns, would have affected his outcome does not excuse the fact that he did not receive the basic care that any patient should expect. He should not have been admitted to a hospital without being seen by a doctor.

The severity of Mr Gulliver's illness during early hours of 20 March 2012 was underestimated by KB and R. Their actions were inappropriate to the severity of his illness which had been indicated at various times during the night by the ADDS score, his continued coughing of blood and vomiting. When R was asked about the blood in the specimen jar by more junior nursing staff who were concerned about Mr Gulliver, R first said that blood was from vomiting and then that it was from coughing. Neither explanation was reasonable or consistent with the amount of blood in the specimen.

R was not called to give evidence at the inquest as she has now retired from nursing, moved to WA where she is caring for a very ill husband and advised my office that she has no recollection at all of any events surrounding the death of Mr Gulliver and no recollection of the events of the night of 20 March 2012. It is difficult to believe that she has no recollection of a patient for whom she was responsible, as team leader, and who died hours after her shift ended in circumstances that were sudden, tragic and unexpected. The other nurses who treated Mr Gulliver all have some independent recollection of the events which surrounded his death which is to be expected in the circumstances.

On 18 March 2012 when he presented to the Mossman Hospital Mr Gulliver was already suffering from late stage Leptospirosis. It is unlikely, therefore, that appropriate treatment at that time would have affected his outcome. However, whilst unlikely there remains the possibility that had the severity of his illness been recognised and had he been given intravenous antibiotics and transferred to Cairns Base Hospital he may have survived.

It is less likely that appropriate treatment on the night of 20 March 2012 would have affected the course of Mr Gulliver's decline but this does not excuse or lessen in any way the seriousness of the failure to ensure that Mr Gulliver received appropriate and timely treatment when he presented to the Mossman Hospital desperately unwell.

The failure to treat Mr Gulliver appropriately on 18 and 20 March 2012 arose, in large part, from the absence of a doctor in the hospital during the night. It remains the case that there is no doctor at the Mossman Hospital during the night. This is unacceptable and results in the people of the Mossman area receiving a lesser standard of health care than those in surrounding districts such as Cairns, Mareeba and Atherton.

Mr Gulliver did not receive timely and appropriate medical treatment at the Mossman Hospital and this may have contributed to his death. Had Mr Gulliver's bacterial infection been diagnosed when he presented to the hospital on 18 March 2012 and had he been treated appropriately it is unlikely but possible that his death may have been averted.

Comments – Harrison

The GP who referred Ms Harrison to the Mossman Hospital did all that could be expected of him. His treatment was appropriate, he referred her to Mossman Hospital and then made every reasonable attempt to ensure that the doctors at the hospital were aware of her pathology results. After being advised of Ms Harrison's death the GP undertook to put in place new procedures to ensure that he and other GP's would be advised of results directly by QML. However, the fact that he was not so advised did not affect the outcome for Ms Harrison. The GP made all reasonable attempts to advise the hospital of the results in a timely manner. His actions and the treatment that he delivered to Ms Harrison were appropriate.

The GP's of the Port Village Medical Centre are to be commended for their efforts in implementing new procedures subsequent to Ms Harrison's death.

Ms Harrison's sister did everything she could to obtain appropriate treatment for Ms Harrison. She took Ms Harrison to the GP, took her for follow up tests and, when advised of the results of those tests, took Ms Harrison to the hospital immediately, as she was advised to do by the GP. I find it unlikely that Ms Harrison's sister did not advise NW of the high white cell count. She had been advised to do so by the GP.

She followed the advice of the GP in all other respects and she told K of the results when spoken to her later in the night.

Ms Harrison did not receive appropriate treatment and care at the Mossman Hospital. There was a failure to diagnose and treat Ms Harrison in a timely manner and this was largely due to the lack of adequate staffing at the Mossman Hospital.

Had Dr B been at the hospital at the time of Ms Harrison's admission he would have been aware of the full history and seen Ms Harrison for himself and be able to make a better assessment of her condition. He may have spoken to Ms Harrison's sister who would have, presumably, told him of the white cell count. He may then have obtained the pathology results. Those results, in conjunction with the fact that K recorded neck stiffness and photophobia overnight would likely have resulted in a consideration of meningitis at the time of her admission or, at the latest, at about 10.40pm that night.

The fact that Ms Harrison was not seen by a doctor on her admission to hospital resulted in a lost opportunity on the night of 9 January 2012 to commence appropriate treatment, being intravenous antibiotics. Her triage category on presentation required her to be seen by a doctor within 30 minutes. She was not comprehensively assessed by a doctor until 2.40pm the next day – some 20 hours later.

As Dr B had not been at the hospital overnight and did not read the notes of K when he saw Ms Harrison the next morning he did not recognize the seriousness of her condition and did not, at that time, carry out a comprehensive examination, instead deciding on a plan of rest and fluids. Had he carried out a comprehensive examination at that time he may well have found symptoms of meningitis (including neck stiffness and photophobia) and realized that her headache had continued unabated despite strong analgesia being administered since her admission. He may have, in light of that information, commenced appropriate treatment. There was therefore, another lost opportunity to treat Ms Harrison on the morning of 10 January 2012.

Ms Harrison died from a rare type of streptococcal meningitis. Considering her rapid decline from the afternoon of 10 January 2012 it cannot be said that with earlier treatment with intravenous antibiotics she would have survived. She may have succumbed regardless of optimum treatment, however, it remains a possibility that Ms Harrison may have survived and that the failure to deliver appropriate treatment may have contributed to her death.

Comments – Morten

Ms Morten did not receive appropriate treatment at the Atherton Hospital. On presentation she was given a triage score that was too low. Even that lower triage score required her to be seen by a doctor within 30 minutes. An ADDS score (which was not calculated as was the case with nearly all of the ADDS scores during her two admissions) required an emergency call. That was not actioned. A second set of observations required further observations to be taken hourly.

Ms Morten was seen by a doctor more than an hour after she attended the hospital. By that time a dip stick urine test showed blood and protein which should have alerted clinicians to the possibility of an infection. The nurse who took the test did not send it to the laboratory and the doctor apparently did not consider it.

At about 9.30pm on 18 July 2012 QML phoned the hospital and advised a nurse that gram negative bacilli had been identified in the blood tests. The nurse recorded that information and told a medical officer. She expected that doctor to order antibiotics

but when he didn't and said that Ms Morten could be reviewed the next day, although the nurse said that she was surprised, she did nothing further.

Ms Morten was not reviewed by a doctor the following morning or, indeed, during all of that day. At about 5.30pm the nursing staff realized that nobody had seen her since 2.15pm and that she couldn't be found on the ward and it was thought she had left the hospital with her carer.

Although there is no note of it, apparently Ms Morten was located at the hospital as Dr K states he reviewed her at about 5.30pm and discharged her. His notes of that review were inconsistent with her observations and her other records. He did not review her blood results or the notes made at 9.30pm the night before and noted she was "completely well" and he was "happy to discharge her without antibiotics". This was patently incorrect, and, as stated, inconsistent with the last observations which had been taken that morning which showed a significant drop in her blood pressure and a rise in her pulse.

Medical staff at the Atherton Hospital failed to identify, despite positive cultures of which they were advised, that Ms Morten was suffering from septicemia. Staff also failed to correctly utilize the ADDS tool which resulted in a failure to recognize the severity of her illness. Those failures resulted in Ms Morton failing to receive the appropriate treatment and being discharged inappropriately.

Although Ms Morten was suffering from a number of serious illnesses and her immune system was probably compromised, it is possible that the timely administration of appropriate antibiotics may have changed the outcome for Ms Morten.

Comments in Conclusion

CHHHS has identified a number of systemic failures, identified changes to address those failures and largely implemented those changes. The ADDS charts are now used in ED and the correct use of those charts continues to be the subject of regular audits. The doctors and nurses involved in the cases and other staff have undergone training in the ADDS tool and RMDP.

The essential failure in relation to the deaths of Ms Harrison and Mr Gulliver was the lack of adequate staffing at the Mossman Hospital.

Staffing levels of doctors at the Mossman Hospital at the time of Ms Harrison's and Mr Gulliver's deaths were, to quote Professor Brown, completely unacceptable.

There was no doctor present overnight and it is clear that there was a reticence by nursing staff to call after-hours medical staff.

As was identified by Ms Mellifont QC, a person attending a hospital after hours should not expect different or lesser treatment than a person attending during day time hours. The minimum that a person should expect on their admission to hospital is to be seen by a doctor.

An on-call doctor is not a substitute for a doctor at the hospital. The circumstances of these deaths illustrate that sometimes information is not conveyed accurately or fully to the on-call doctor. It is not always evident that doctors have properly understood the information they are told or considered it carefully enough. A doctor speaking to a nurse does not have the benefit of seeing a patient, reviewing the full history and assessing the patient for herself. Tired doctors may not attend the hospital when

required. It is essential for the proper review of a patient, a proper diagnosis and management plan and proper consideration of the severity of that person's illness that a doctor see the patient in person.

The failure to diagnose and the failure to recognize the deterioration of Ms Harrison and Mr Gulliver and the resulting failure to provide treatment in a timely manner arose directly from the inadequate staffing of doctors at the Mossman Hospital. The doctor who inappropriately discharged Ms Morten from the Atherton Hospital said that understaffing was the reason she was not reviewed in the morning and then discharged without appropriate consideration of all relevant factors.

Less direct results include fatigued doctors, doctors resigning from the service, and nurses having to escalate their concerns when on-call doctors do not respond to their requests to attend the hospital.

This state of affairs remains at the Mossman Hospital. There is still no doctor at the hospital overnight. Although staff have been directed that all patients who are admitted are to be seen by a doctor this is not occurring in all cases and the fact that doctors are unable or unwilling to attend is resulting in patients being kept in ED rather than being admitted to the ward.

One locum has been counselled and one has been dismissed due to their failure to attend out of hours to see patients who required admission.

Also of concern is the fact that there is no radiographer at the Mossman Hospital overnight. Again there is a reluctance to call that person in. Dr Y said that even if he admitted a patient who required an x-ray he would wait until the radiographer was there to have it done. In the face of such reluctance there is little point in having a radiographer on call.

In addition to staffing levels, the most concerning feature of these of these three deaths, especially when considered together, but even when looked at individually, is that the failure to deliver appropriate and timely medical treatment was not an isolated incident or the fault of one doctor or nurse.

There was a culture of apathy at the Mossman and Atherton Hospitals which spread across numerous nurses and doctors. Further, there was a culture of failure to adhere to policies and procedures, failure to correctly document medical notes and a failure to consider the patient's medical records and history contained in the patient's chart.

A number of the nurses involved in the three cases were senior nurses. Mr Gulliver, Ms Harrison and Ms Morten were all seen, during their admissions, by a number of nurses and doctors. Many of the nurses were aware of test results that were not passed on. There were failures by doctors to attend at the hospital when required, failure to action positive test results and failure to deliver appropriate and timely medical treatment.

Not one of the nurses who were aware of those failures escalated the matter by advising the Director of Nursing or the Medical Superintendent of their concerns. They stood by and did nothing whilst their patients deteriorated to the point of death and did so in the face of clear evidence, including positive pathology results, deteriorating ADDS scores and obviously significant and serious symptomology, that their patients required medical treatment.

A number of nurses gave evidence that they would now act on their concerns by notifying the Director of Nursing or Medical Superintendent. Hopefully this applies to all nursing staff across the CHHHS.

On a positive note, it has become evident during the coronial investigation and inquest that Ms Harrison and Mr Gulliver received a high quality of care at the Port Village Medical Centre. Those doctors are to be commended for the standard of patient care they delivered. They diagnosed correctly, ordered appropriate testing and, when advised of the results of those tests, contacted their patients and the hospital. When the doctors at the practice became aware of Ms Harrison's death, although their actions contributed to it in no way, they undertook to identify and implement new practices with the hospital and QML in order to facilitate better communication pathways with those entities.

Recommendations

In accordance with my comments and findings, I make the following recommendations:

1. CHHHS implement the proposed workforce model at Mossman Hospital as soon as possible and report as to the implementation of the workforce and its continuation to the Office of the State Coroner, annually for 5 years, with the first such report to be delivered by 28 February 2015.

2. CHHHS ensure that pathology testing laboratories and local General Practitioners and Medical Centres are provided with a telephone number for the Emergency Department for the Mossman and Atherton Hospitals which is answered at all times and through which the caller is able to be put through to the on duty medical officer.

3. CHHHS and/or Queensland Health consider funding a full time radiographer at the Mossman Hospital.

4. CHHHS and/or Queensland Health consider funding for a full-time nurse educator for the Hinterland Hub.

5. Queensland Health appraise itself of the report and evidence of Professor Brown and educate its clinicians (doctors and nurses) as to the importance of acting upon haemoptysis, and the importance of not discounting haemoptysis as being likely due to a burst blood vessel from coughing.

6. The Australian College of Rural and Remote Medicine, the Australian College of General Practitioners, the Australian College of Nursing, the Medical Board of Australia (Queensland Office) and the Nursing Board appraise themselves of the report and evidence of Professor Brown and consider disseminating information to their members as to the importance of acting upon haemoptysis, and the importance of not discounting haemoptysis as being likely due to a burst blood vessel from coughing.

Findings required by s. 45

Graeme Gulliver

Identity of the deceased – Graeme Barry Gulliver

How he died – from natural causes

Place of death – Mossman Hospital MOSSMAN QLD 4873 AUSTRALIA

Date of death– 20 March 2012

Cause of death – Sepsis caused by Leptospirosis

Joanne Harrison

Identity of the deceased – Joanne Lee Harrison

How she died – from natural causes

Place of death – Mossman Hospital MOSSMAN QLD 4873 AUSTRALIA

Date of death– 12 January 2012

Cause of death – Group A streptococcal meningitis and septicaemia

Aileen Morten

Identity of the deceased – Aileen Margaret MORTEN

How she died – from natural causes

Place of death – Atherton Hospital ATHERTON QLD 4883 AUSTRALIA

Date of death– 23 July 2012

Cause of death – Septicaemia due to Escherichia coli

I close the inquest.

Jane Bentley
Coroner
CAIRNS
8 December 2014