IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2006 4171

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)
Section 67 of the ***Coroners Act 2008***

Inquest into the Death of: GAIL FERGUSSON

Delivered On:	17 April 2014
Delivered At:	Level 11, 222 Exhibition Street Melbourne 3000
Hearing Dates:	19 February 2010 16 – 18 May 2011
Findings of:	CORONER JACQUI HAWKINS
Representation:	Mr J. Selimi with Mr Boden appeared on behalf of the family Mr R. Dyer appeared on behalf of Dr J. Dalgleish Mr N. Murdoch appeared on behalf of Dr C. Ley Mr C. Winneke appeared on behalf of Dr Sikaris Dr P. Halley appeared on behalf of the Epworth Hospital
Police Coronial Support Unit	Sergeant D. Dimsey appeared to assist the Coroner.

I, JACQUI HAWKINS, Coroner having reviewed the investigation into the death of GAIL FERGUSSON

AND the inquest[1] held by Coroner Hendtlass on 16-18 May 2011 in relation to this death

at MELBOURNE

find that the identity of the deceased was GAIL FERGUSSON

born on 5 March 1941

and the death occurred on 31 October 2006

at Epworth Hospital, 34 Erin Street, Richmond, Victoria 3121

from:

1 (a) LIVER FAILURE

1 (b) PARACETAMOL TOXICITY

2 CORONARY ARTERY ATHEROSCLEROSIS. DIABETES MELLITUS

in the following circumstances:

SUMMARY OF CIRCUMSTANCES

1. Ms Gail Fergusson was a 65 year old retired nurse who died at the Epworth Hospital in the early hours of Tuesday 31 October 2006 after being admitted on 28 October 2006 with a fractured left neck of humorous (fractured upper arm).

2. At approximately 0900 hours on Friday 27 October 2006, Ms Fergusson slipped in the bath and hurt her arm. She suspected it was broken but told her daughter, Ms Anna Cabdi, it was not urgent and that she would go to the doctor the next day. Ms Cabdi stated that her mother had a "great fear and dread of hospitals".[2]

3. Ms Cabdi took her mother to the Epworth Hospital Emergency Department on Saturday 28 October 2006 at approximately 1630 hours. Ms Fergusson was examined by the attending emergency physician, Dr Joanne Dalgleish, at approximately 1800 hours.

4. Dr Dalgleish obtained a medical history which included bipolar disorder, osteoporosis with previous fractures, hypotension, cholecystectomy, gastro-oesophageal ulcer and

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1 This finding does not purport to refer to all aspects of the evidence obtained in the course of the investigation. The material relied upon included statements and documents tendered in evidence together with the transcript of proceedings and submissions of legal counsel. The absence of reference to any particular aspect of the evidence, either obtained through a witness or tendered in evidence does not infer that it has not been considered.

2 Exhibit 1 – Statement of Anna Cabdi dated 23 November 2006, p1

diverticulitis.[3] Ms Cabdi disclosed that during manic phases of her mother's bipolar disorder that her mother would consume large amounts of alcohol.

5. Ms Fergusson had an x-ray for her arm and was advised that she would probably need to spend a few days in hospital.

6. Blood samples were taken at 1805 hours for testing for Full Blood Examination (FBE) Urea and Electrolytes (U&E), Creatinine and glucose and were sent to pathology at 1850 hours. Although the presenting problem was a fractured arm, a finger prick test for blood sugar level was taken and showed an abnormally high reading of 17.2 which indicated undiagnosed diabetes. The blood results from the laboratory test showed a similar high reading of 16.7.

7. Due to the elevated blood sugar level Dr Dalgleish contacted the on call endocrinologist, Dr Christopher Ley, who suggested that she commence oral hypoglycaemic medication. Dr Dalgleish also ordered a further glucose test to be performed the following morning.

8. At about 2030 hours, after the initial U&E and Glucose results had been reviewed, a request for a Liver Function Test (LFT) was added by Dr Dalgleish. This was done to determine if, given the history of intermittent consumption of excess alcohol, liver damage was contributing to the elevated glucose.

9. By approximately 2100 hours, Ms Fergusson was admitted to a ward under the care of Mr Sam Patten, Orthopaedic Surgeon.

10. Late in the evening of Saturday 28 October, Dr Ley believes he received a telephone call from Melbourne Pathology about Ms Fergusson's test results, however he was unable to identify the patient from the information he was given and requested that they contact Epworth Hospital.[4]

11. Later that evening, Dr Ley received a call from the medical fellow at Epworth and was advised of Ms Fergusson's abnormal LFT results. He felt the results were consistent with the patient's history of alcohol abuse and her recent fracture and it was appropriate to involve a gastroenterologist the following day.[5]

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3 Exhibit 2 – Statement of Dr Dalgleish dated 23 March 2007, p1

4 Exhibit 4 – Statement of Dr Ley undated, p1

5 Exhibit 4 – Statement of Dr Ley undated, p2 & Transcript of evidence, p115

12. Late on Sunday morning Dr Ley called to check on Ms Fergusson's glucose level and became aware that her clinical state had deteriorated. He contacted Melbourne Pathology to request that a paracetamol level be performed on the blood that had been collected the previous evening and he also requested medical staff to obtain a history of paracetamol ingestion.[6]

13. At approximately 1200 hours Ms Cabdi arrived at the hospital and found her mother to be extremely drowsy and believed it was due to her pain relief. A medical practitioner conducted a full examination of Ms Fergusson and enquired of Ms Cabdi how many Panadeine she thought her mother may have taken prior to her attendance at hospital.

14. Dr Ley attended the hospital and considered that Ms Fergusson was clinically unwell and arranged for her to be transferred to Intensive Care Unit (ICU).

15. On Monday 30 October 2006 an ICU nurse called Ms Cabdi to advise that her mother had deteriorated and that she should attend the hospital as soon as possible.

16. On Tuesday 31 October 2006 at 0300 hours Ms Fergusson died.

JURISDICTION

17. The Coroners Court of Victoria is an inquisitorial jurisdiction.[7] Section 67 of the Coroners Act provides that a coroner must find, if possible, the identity of the deceased, the cause of death and, in some cases, the circumstances in which the death occurred.

18. The role of a coroner in this State includes the independent investigation of deaths to contribute to a reduction in the number of preventable deaths, the promotion of public health and safety, and the administration of justice.

19. A coroner may comment on any matter connected with the death, may report to the Attorney-General and may make recommendations to any Minister, public statutory authority or entity, on any matter connected with the death, including recommendations relating to public health and safety or the administration of justice.[8]

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6 Exhibit 4 – Statement of Dr Ley undated, p3 and transcript of evidence, p108

7 Section 89(4) of the Coroners Act.

8 Sections 72(1) and (2) of the Coroners Act.

ASSIGNMENT OF INQUEST FINDINGS

20. Coroner Hendtlass retired on 31 December 2013 without completing the inquest findings in this investigation. The State Coroner of Victoria, His Honour Judge Ian Gray, assigned the completion of this Finding into Death with Inquest (Finding) to me pursuant to section 96 of the Coroners Act.

21. In writing this Finding, I have conducted a thorough forensic examination of the evidence including reading all the witness statements contained within the inquest brief, supplementary statements and exhibits. I have also read the transcript of the directions hearing and the inquest.

CORONIAL INVESTIGATION AND INQUEST

22. Coroner Hendtlass commenced an investigation and held an inquest into the death of Ms Fergusson on 16-18 May 2011.

Family concerns

23. Ms Cabdi wrote a letter to the Court dated 23 November 2006 outlining concerns she had with the care and management of her mother, which assisted in determining the scope of the inquest.

Viva Voce evidence at the Inquest

24. The following witnesses were called to give *viva voce* evidence at the Inquest:

- Anna Cabdi, Daughter of Mrs Fergusson
- Dr Joanne Dalgleish, Emergency Physician, Epworth Hospital
- Dr Christopher Ley, Consultant Endocrinologist,
- Associate Professor Allen Yuen, former Director of Emergency Medicine, Epworth Hospital
- Dr Ronald Sultana, Director Emergency Medicine at the time of the Inquest, Epworth Hospital
- Dr Kenneth Sikaris, Director of Chemical Pathology, Melbourne Pathology
- Dr Christopher O'Callaghan, Consultant Physician.

Submissions

25. Interested Parties were invited to provide written legal submissions at the conclusion of the Inquest. Counsel representing all of the interested parties provided written submissions, which I have considered for the purpose of this Finding.

Issues investigated

26. Section 67 of the Coroners Act requires me to find:
    a) the identity of the deceased
    b) the cause of death
    c) the circumstances in which the death occurred.

IDENTITY OF THE DECEASED

27. I find the identity of Gail Fergusson was without dispute and required no additional investigation.

CAUSE OF DEATH

28. Dr Michael Burke, Senior Forensic Pathologist at the Victorian Institute of Forensic Medicine (VIFM) conducted a post mortem examination on 6 November 2006. Dr Burke ascribed the cause of Ms Fergusson's death to:

    1 (a) LIVER FAILURE
    (b) PARACETAMOL TOXICITY
    2 CORONARY ARTERY ATHEROSCLEROSIS DIABETES MELLITUS[9]

29. Dr Burke noted that Ms Fergusson had a markedly abnormal liver function, was shocked and had required ventilation, dialysis, and maximal cardiovascular and respiratory support.[10] Dr Burke further noted that the "microscopic examination of liver showed florid centrilobular necrosis consistent with paracetamol overdose."[11]

30. Toxicological analysis was conducted by Dr Kerryn Crump, Senior Toxicologist at VIFM and found a raised paracetamol level of ~125mg/L".[12] The toxicological examination also showed levels of codeine, diazepam, nordiazepam, morphine and paracetamol. Paracetamol

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9 Exhibit 11 - Inquest brief, Autopsy Report, p6
10 Exhibit 11 - Inquest brief, Autopsy Report, p7
11 Exhibit 11 - Inquest brief, Autopsy Report, p7
12 Exhibit 11 - Inquest brief, Autopsy Report, p7

"may exhibit toxicity when taken in excessive quantities. This is expressed as liver toxicity which may take hours or even days or months to develop".[13]

31. Dr Chris O'Callaghan provided an expert opinion regarding medical management, including a comment on the cause of death and stated that by the time Ms Fergusson presented to the Epworth Hospital she was exhibiting evidence of liver toxicity and evidence consistent with bacterial infection.[14] He further stated that liver failure or bacterial infection would have been sufficient to cause circulatory failure and death, but he was unable to ascertain the predominant mechanism.[15] The issue of sepsis as a cause of death was not contested during his evidence at inquest. Conversely, Dr Burke did not attribute sepsis as a cause of death and was not called to give evidence.

32. The evidence is that Ms Fergusson is likely to have ingested excessive amounts of paracetamol by way of taking repeated doses of Panadeine tablets for pain relief following her fall. The evidence supports the conclusion that ingestion took place well prior to Ms Fergusson's attendance at the Emergency Department.

CIRCUMSTANCES IN WHICH THE DEATH OCCURRED

33. I do not propose to recount or summarise all of the evidence but rather refer to the parts that are necessary touching upon the relevant circumstances investigated as part of the inquest.

Scope of inquest/issues identified

34. At the directions hearing held on 19 February 2010, Coroner Hendtlass outlined the scope of the inquest. Other issues also emerged during the course of the inquest. In combination, the issues considered were as follows:

a) Communication of pathology results, particularly the LFTs

b) Would earlier diagnosis of abnormal liver function and/or earlier consideration of paracetamol toxicity have changed the outcome?

c) Reporting of eGFR[16]

d) Would management have occurred differently if the patient had presented on a weekday?

e) Would earlier diagnosis of infection have changed the outcome?

f) No consistency in pathology risk reporting levels

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13 Exhibit 11 - Inquest brief, Toxicology Report, p5

14 Exhibit 10 – Statement of Dr Chris O'Callaghan dated 28 January 2009, p3

15 Exhibit 10 – Statement of Dr Chris O'Callaghan dated 28 January 2009, p3

16 Estimated Glomerular Filtration Rate

g) System changes at Epworth Hospital

h) Delay in reporting Ms Fergusson's death to the Coroners Court.

Communication of pathology results, particularly the LFTs

Did Dr Dalgleish know of the LFT results?

35. As part of her assessment of Ms Fergusson, Dr Dalgleish ordered standard blood tests, including U&E and Creatinine. Dr Dalgleish stated that she definitely ordered the LFTs[17] because of the glucose in the urine, Ms Fergusson's history of drinking[18] and her concern that this may have been causing the hypoglycaemia. [19]

36. Dr Dalgleish commented that you would not ordinarily order LFTs for someone with a broken arm however she believed that she did so because it would have been useful for the inpatient team to have a baseline set of results for Ms Fergusson's further management.[20]

37. Dr Dalgleish stated that she checked the initial blood tests of FBE, U&E/Cr and Glucose before ward transfer which was her normal practice for a stable surgical patient, however as the LFTs were added later, and had not returned by the end of her shift, she considers she was unable to check the results.[21] In evidence Dr Dalgleish confirmed that she was not notified of the abnormal result.[22]

38. Dr Dalgleish stated that Ms Fergusson did not exhibit any signs of liver toxicity such as vomiting, nausea or abdominal pain.[23] During her time on the ward there was nothing that made Dr Dalgleish suspicious about Ms Fergusson's general medical position.[24] This was confirmed by Dr Ley who said that he understood that the patient was stable when Dr Dalgleish saw her.[25]

39. Dr Dalgleish stated that the nature of emergency medicine is that you often order a lot of tests which are routine screening and "it would be impossible to review every single test that we ordered in emergency prior to the patient…getting admitted".[26]

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17 Transcript of evidence, p50

18 Transcript of evidence, p31

19 Transcript of evidence, pp23, 51, 59

20 Transcript of evidence, p59

21 Exhibit 2 – Statement of Dr Joanne Dalgleish dated 23 March 2007

22 Transcript of evidence, p31

23 Exhibit 2 – Statement of Dr Joanne Dalgleish dated 23 March 2007, p2

24 Transcript of evidence, p42

25 Transcript of evidence, p110

26 Transcript of evidence, p47

40. Dr Dalgleish testified that it was standard procedure to receive abnormal results from pathology by phone.[27] However she admitted it was possible that results could be faxed through without phone notification.[28]

41. Mr Peter Dohrmann, Executive Medical Director of Epworth Healthcare stated:

> For sick patients, all baseline results are reviewed by the treating doctor as soon as the results from Melbourne Pathology are faxed to the Emergency Department, usually within one hour of collection, these are discussed with the receiving consultant, and management is decided prior to transfer to ward. [29]

42. He further stated:

> For routine patients, where results are not expected to be abnormal, patients may be transferred to the ward earlier. When the results come back, they are checked, and if abnormal, the clerks obtain the file for the doctor doing the auditing, and the patient or their treating doctor is contacted. [30]

43. Dr Dalgleish was asked a number of times during her evidence whether she received a telephone call about Ms Fergusson's abnormal results from Melbourne Pathology and she was emphatic that she had not.[31] Dr Dalgleish commented that if she had not seen the results prior to Ms Fergusson transferring to the ward then the results would have been sent through to the ward.[32]

44. Dr Dalgleish stated that if she was clinically concerned she would not have sent Ms Fergusson to the ward.[33] Further, if she had seen them there would have been a different action plan implemented at the time.[34]

45. In evidence Dr Dalgleish confirmed that the first time she became aware of any abnormal results in relation to Ms Fergusson was after her death. She stated that if she had known about the abnormal results she would not have prescribed panadeine for pain relief.[35]

46. Associate Professor Yuen accepted Dr Dalgleish's evidence that she had not seen the abnormal results. Further, he commented that Dr Dalgleish was one of the most senior doctors and a very dependable and conscientious doctor.[36]

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27 Transcript of evidence, p32
28 Transcript of evidence, p38
29 Letter of Peter Dohrmann, Executive Medical Director of Epworth Healthcare dated 15 March 2007
30 Letter of Peter Dohrmann, Executive Medical Director of Epworth Healthcare dated 15 March 2007
31 Transcript of evidence, pp27, 38, 65, 66, 88
32 Transcript of evidence, p27
33 Transcript of evidence, p64
34 Transcript of evidence , p76
35 Transcript of evidence, p35

Did Melbourne Pathology inform medical clinicians of results?

By Telephone

47. The pathology analysis of the liver function indicated an AST[37] level of 2907, which was abnormal. The importance of AST levels this high is that it can indicate that a line of enquiry that should be considered is paracetamol poisoning.[38] Melbourne Pathology has a set of risk level guidelines that prescribe when it is appropriate to personally contact a clinician with abnormal results. Ms Fergusson's AST results exceeded, by almost three times, the laboratory's threshold for the attending physician to be contacted by telephone and advised of the abnormality.[39]

48. Dr Sikaris admitted that the AST level was above Melbourne Pathology's protocol limits and "should have been communicated without delay and also followed up with a phone call."[40] Dr Sikaris conducted an investigation and was unable to find any record of that abnormal result being directly phoned to the medical practitioner.[41] Interestingly though, Dr Ley believed he received a phone call from someone from Melbourne Pathology in the late evening or early hours of Sunday morning.[42] However there was no evidence provided by Melbourne Pathology to support this.

49. Dr Dalgleish indicated in evidence that a medical practitioner would not ordinarily call Melbourne Pathology if they did not suspect an abnormal result[43] and their patient was stable.[44]

By facsimile

50. According to Melbourne Pathology's tracking notes[45] the blood test results relating to the LFTs were recorded as being sent at 2024 hours on 28 October 2006.[46] The pathology

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36 Transcript of evidence, p184

37 Aspartate aminotransferase

38 Transcript of evidence, p226

39 Interestingly "in Australia there are no prescribed levels at which results for any test are expected to be phoned to a clinician. This is left to the individual laboratory director." However, the Australian Standard 4633 (ISO 15189) section 5.8.7 states that "The laboratory shall have procedures for immediate notification of a physician (or other clinical personnel responsible for patient care) when examination results for critical properties fall within established 'alert' or 'critical intervals'.

40 Transcript of evidence, p224

41 Exhibit 9 – Statement of Dr Sikaris dated 10 April 2007, p1 and transcript of evidence, p224

42 Transcript of evidence, p161

43 Transcript of evidence, p47

44 Transcript of evidence, p97

45 Exhibit 9 – Statement of Dr Sikaris dated 10 April 2007, see appendix

report highlighted the high LFT and glucose results by placing an "H" alongside the readings and included the normal range in parenthesis.[47]

51. Dr Ron Sultana stated there was no fax in the clinical record corresponding to Melbourne Pathology's log of a fax at 2024 hours. There were also no "nursing notes either that suggest a call or fax was received on the ward for example notifying of abnormal [LFT]s".[48] Dr Sultana stated that he conducted a thorough search for the original Melbourne Pathology results but he was never able to find the original, only a photocopy.[49] The pathology report was initialled however, Dr Dalgleish denied it was her initial[50] and no other person has been identified as having initialled the report.

52. Associate Professor Yuen conceded that it was possible the fax was never received in the Emergency Department and might have been received somewhere else.[51]

Likely scenario

53. There is evidence that the pathology report was sent to the Emergency Department and placed on the medical file, as the pathology report was initialled by an unknown person. The results were available to medical staff in the ward and it is apparent they were aware of them because of communication with Dr Ley about them.

54. It is likely the Melbourne Pathology results were faxed, picked up and placed in the medical file and then sent to the ward with Ms Fergusson. This is evidenced by the form "Inter-Unit Transfer Checklist" on which the notation "Pathology Results in History" is ticked yes, suggesting that they were sent with the patient to the ward.[52] This is consistent with Dr Ley receiving a phone call from a medical fellow in the night of 28 October 2006 confirming the LFTs.

55. Dr O'Callaghan summarised the situation as:

> the pathology [department] handed information to the doctors, the doctors handed information amongst themselves and unfortunately no-one quite got all the information together at one time and had they done so, if Dr Dalgleish had seen the full blood examination, the [LFTs] and had the patient in front of her, with the

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46 Exhibit 6 - Melbourne Pathology Report dated 20 October 2006 and transcript of evidence, p39

47 Submissions for Dr Sikaris, p6

48 Exhibit 7 – Statements of Dr Ron Sultana dated 7 February 2008, 14 July 2010 and 29 October 2010. p2

49 Transcript of evidence, p204

50 Transcript of evidence, p49

51 Transcript of evidence, p153

52 Legal submissions of Dr Sikaris, p11

emergency brain, I think the penny would have dropped....it speaks to the need for handover processes to be very rigorous... So in this case, the pathology got the information out and it was all there..."[53]

56. Associate Professor Yuen agreed that there appeared to have been a breakdown in communication between Melbourne Pathology and the Emergency Department which resulted in a tragic outcome.[54] This breakdown in communication, according to Associate Professor Yuen was a cause of great concern.[55]

Would earlier diagnosis of abnormal liver function and/or earlier consideration of paracetamol toxicity have changed the outcome?

57. Dr Ley testified that late on Saturday evening he received a call from the medical fellow at Epworth Hospital and was advised of Ms Fergusson's abnormal LFT results.[56] He felt they were consistent with the patient's history of alcohol abuse and her recent fall and fracture and that it was appropriate to involve a gastroenterologist the following day.[57] Interestingly though, there is no documentation in Ms Fergusson's medical record of any assessment by a hospital medical fellow, made overnight on 28/29 October 2006. There is no explanation for this lack of note and the relevant medical fellow has not been identified.

58. Late on Sunday morning Dr Ley called to check on Ms Fergusson's glucose levels and became aware that her clinical state had become unstable. He stated that he considered the possible causes of her decline and contacted Melbourne Pathology to request that a paracetamol level test be performed on the blood that had been collected the previous evening.[58] He also requested medical staff to obtain a history of paracetamol ingestion.[59]

59. When Dr Natalie Hewat from ICU became aware of Ms Fergusson's elevated LFTs, she "elicited from the patient that she had taken approximately 100 Panedeine tablets prior to admission to the hospital."[60] The medical records note a conversation with Dr Ley about Ms Fergusson's "Blood Sugar Levels" and condition. The notes refer to "paracetamol antidote", then a notation "too late needs to be 10 hrs".[61]

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53 Transcript of evidence, p284
54 Transcript of evidence, p141
55 Transcript of evidence , p157
56 Exhibit 4 – Statement of Dr Ley undated, p2
57 Exhibit 4 – Statement of Dr Ley undated, p2 & transcript of evidence, p115
58 Exhibit 4 – Statement of Dr Ley undated, p3
59 Transcript of evidence, p108
60 Exhibit 11 – Inquest Brief, Statement of Dr Natalie Hewat
61 Medical Records, nursing notes dated 29 October 2006

60. Mr Patten was her treating doctor. His first knowledge of the abnormal blood tests was when he first saw her in ICU on Sunday 30 October 2006 after speaking with Dr Ley.[62] Prior to this no one had notified him of her blood test results and there had been no mention of a severe medical emergency involving her likely ingestion of a fatal dose of Panadeine tablets. Importantly he noted that there was no mention of potential ingestion of abnormal or potentially harmful amount of analgesics or other medications in any of the medical records until after the conversation with Dr Ley.[63]

Would Ms Fergusson have survived had her paracetamol overdose been diagnosed earlier?

61. The timing of the ingestion of paracetamol by Ms Fergusson is unclear. It is likely that Ms Fergusson took the paracetamol over a number of hours, from the time of her fall on Friday morning to her presentation at the Emergency Department on Saturday.

62. Dr O'Callaghan stated that paracetamol poisoning causes accumulation of toxins within the liver, which may be sufficient to destroy the liver and thereby cause death. N-acetylcysteine (NAC) is the antidote that can reverse the effects of a paracetamol overdose. If NAC is administered before the toxic metabolites accumulate, liver damage can be prevented. To be effective, NAC must be given as soon as possible and preferably within 24 hours of paracetamol ingestion.[64]

63. The evidence supports the fact that Ms Fergusson's paracetamol poisoning became known on Sunday 29 October after medical staff had enquired as to whether she had ingested a large amount of paracetamol. Once this was established the antidote was administered.

64. Dr Sikaris initially stated that he believed that earlier diagnosis would have prevented the liver failure.[65] However in evidence he testified that he did not consider it likely that NAC given at any time following presentation to the Epworth Hospital would have prevented the fatal outcome.[66] Counsel for Dr Ley agreed, submitting that there was no evidence on which it could be concluded that had NAC or antibiotics or indeed any other medication been administered to Ms Fergusson that the outcome would have been any different.[67]

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62 Exhibit 11 – Inquest Brief, Statement of Mr Sam Patten, p3
63 Exhibit 11 – Inquest Brief, Statement of Mr Sam Patten, p4
64 Exhibit 10 – Statement of Dr Chris O'Callaghan dated 28 January 2009, p3
65 Exhibit 9 – Statement of Dr Sikaris dated 10 April 2007, p2
66 Transcript of evidence, p231
67 Legal Submissions of Dr Ley, p1

Reporting of eGFR

65. The estimated Glomerular Filtration Rate (eGFR) is a test to measure renal functioning. Specifically, it estimates how much blood passes through the glomeruli each minute. Glomeruli are the tiny filters in the kidneys that filter waste from the blood. The eGFR is calculated using an empirical mathematical formula that applies serum creatinine and then substitutes the subject's age, gender and some additional individual information.

66. Ms Fergusson's computed eGFR result indicated a low level, suggesting that her liver was working. Dr O'Callaghan commented that the rate of her deterioration suggested that she had almost no kidney function, although he noted that Melbourne Pathology recorded her eGFR as being 35mL/minute – which is consistent with intact, albeit impaired renal function.[68] However, because the result is derived and not an actual measurement, her low level was not a reflection of her true liver function and was therefore falsely re-assuring.[69]

67. Dr Sikaris provided information that eGFRs are difficult to interpret and that an eGFR test is not reliable in unstable patients.[70] Dr O'Callaghan commented "that it would be desirable if the algorithms that are used for reporting this value are altered to alert clinicians of the potential unreliability of this measurement in these circumstances."[71]

68. In any event, given Ms Fergusson's paracetamol poisoning and deteriorating condition, the eGFR result did not ultimately impact her overall treatment. Nevertheless, an important lesson to be learnt from these circumstances is that clinicians should understand the limitations of an eGFR and should not rely on these tests in an unstable patient.

Would management have occurred differently if the patient had presented on a weekday?

69. An issue identified as part of the investigation was whether medical management would have been different if Ms Fergusson had presented on a weekday. In response to this issue, Dr Dalgleish gave evidence that there were specialists of every kind on call and available over that weekend.[72]

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68 Exhibit 10 – Statement of Dr Chris O'Callaghan dated 28 January 2009, p2

69 Transcript of evidence, p13

70 Transcript of evidence, p241

71 Exhibit 10 – Statement of Dr Chris O'Callaghan dated 28 January 2009, p5

72 Transcript of evidence, p 40

70. Associate Professor Yuen stated that staffing in the Emergency Department actually increased during the weekends in proportion with attendance rates and there is little difference in management of emergency patients on weekends.[73]

71. Based upon all the available evidence, I do not consider that Ms Fergusson's treatment would have been different if she had presented on a weekday.

Would earlier diagnosis of infection have changed the outcome?

72. Dr O'Callaghan stated that Ms Fergusson had a substantial elevation of white cells which usually indicates infection. Further, infection was an underlying issue that was not picked up until later[74] and early diagnosis may have been missed due to the distracting features of the paracetamol overdose and her subsequent deteriorating condition.[75]

73. Dr O'Callaghan believed Ms Fergusson's deterioration was due to septic shock and this should have been considered as a possibility on the night of 29 October 2006, however antibiotics were not administered until 6am on 30 October 2006. He commented that the medical practitioners looking after Ms Fergusson were late to investigate sepsis and he believed had the antibiotics been administered earlier it may have altered her outcome. He suspected the elevated white blood cell count was serially obscured during the numerous handovers that occurred with this patient and it was complicated by the distraction of managing the arm fracture, identifying the cause of the liver dysfunction, treating the paracetamol poisoning and the liver failure. He stated that regrettably this can be a feature of managing complex patients. [76]

No consistency in pathology risk reporting levels

74. At the time of Ms Fergusson's death there was no threshold limit for reporting ALT, which is the enzyme test specifically related to liver damage. At the time the risk level for AST was 1000 which required the Melbourne Pathology scientist to contact a medical practitioner.

75. In evidence Dr Sikaris said that the reporting limits have been the subject of intense review and discussion at a national and international level and that there are no universally accepted

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73 Exhibit 6 – Statements of Associate Professor Yuen dated 27 April 2010, p2

74 Exhibit 10 – Statement of Dr Chris O'Callaghan dated 28 January 2010, p4

75 Transcript of evidence, p287

76 Exhibit 10 – Statement of Dr Chris O'Callaghan dated 28 January 2010, p4

limits. Dr Sikaris said "the entire pathology community of Australia and the world would like some guidance about the level of risk that we should be aiming our critical limits at."[77]

76. I acknowledge that it would be beneficial for pathologists to have consistent and universally accepted limits, however given that this was already being discussed in a number of forums by experts in the field and the amount of time that has lapsed since this inquest was held, the utility of making any formal recommendation as to acceptable risk reporting limits for AST and ALT levels is limited.

System changes at Epworth Hospital

77. Dr Ron Sultana provided evidence as to changes that have been made at Epworth Hospital as a result of this incident:

- The Emergency Department introduced a formal protocol entitled "Epworth Emergency Department Pathology and Radiology Follow Up Policy" which requires an allocated member of the Emergency Department to sign off and follow up pathology and x-ray results daily. Also all Emergency Department physicians are to ensure that all discharged patients and their treating doctors are made aware of any unexpected abnormal results and the threshold for what constitutes an abnormal finding has been lowered. This policy was implemented in October 2010.[78]
- Epworth Hospital now has medical fellow cover 24 hours a day, 7 days a week.
- An Early Medical Emergency Response System has been established for the inpatient environment. This system seeks to identify a deteriorating patient earlier, prompting quicker medical decision-making and therapeutic response.
- Electronic Patient Management System now has the facility to allow medical staff to create discharge letters, noting any abnormal results or outstanding tests for the patients' general practitioner to follow up and a way of checking whether abnormal results have been noted and actioned.
- Filing processes for pathology and radiology results have been improved.
- Pathology and Radiology partners now carbon copy all results ordered by the Emergency Department to the patient's general practitioner.

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77 Transcript of evidence, p260

78 Transcript of evidence, p209

- The Epworth Hospital planned to acquire a new software program which would allow electronic sign off for test results.[79]

78. I am hopeful these changes have helped to minimise the risk of something like this occurring again.

Delay in reporting Ms Fergusson's death to the Coroners Court

79. The Intensive Care Unit at the Epworth Hospital did not initially report this death to the Coroners Court despite the legal obligation of medical practitioners to report reportable deaths.

80. Rather, Ms Fergusson's death was reported to the Coroners Court two days after she had been released to the Funeral Directors. Counsel for Epworth Hospital conceded there was a misinterpretation when it came to reporting this case to the Coroners Court as a reportable death.[80] I acknowledge that on review of this case Epworth Hospital recognised their mistake that Ms Fergusson's death was reportable and made all efforts to advise the Coroners Court.

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79 Exhibit 7 – Statement of Dr Ron Sultana dated 29 October 2010.

80 Transcript of evidence, p215

FINDINGS

81. When making my findings in relation to the circumstances of Ms Fergusson's death, particularly about the conduct of individuals and organisations, the appropriate standard of proof to apply is articulated in *Briginshaw v Briginshaw*[81] which requires me to be satisfied on the balance of probabilities. The effect of this authority is that Coroners should not make adverse findings against or comments about individuals unless the evidence provides a comfortable level of satisfaction that they caused or contributed to the death.

82. I find that Gail Fergusson died on 31 October 2006 at the Epworth Hospital. I accept the cause of death as ascribed by Dr Burke and find that she died from:

1(a) LIVER FAILURE
(b) PARACETAMOL TOXICITY
2 CORONARY ARTERY ATHEROSCLEROSIS
DIABETES MELLITUS

83. I find that Gail Fergusson was a retired nurse who self-administered a large quantity of paracetamol tablets for pain relief. This commenced after her fall and continued over the following hours at home, prior to her presentation to the Epworth Hospital. However, I am not satisfied to the requisite degree that she intended to take her own life by consuming the tablets.

84. I find based upon all of the available evidence that although the NAC antidote was administered within a reasonable time of the overdose becoming known by the time Ms Fergusson's presented to the Emergency Department it was already too late for the antidote to be effective.

85. I further find that the diagnosis of Ms Fergusson's rapidly deteriorating condition was made particularly difficult because treating clinicians were unaware that she had ingested an excessive quantity of tablets.

86. Dr Dalgleish was an experienced specialist emergency physician who was practising within her area of expertise on 28 October 2006. She took a detailed medical history from Ms Fergusson when she presented to the Emergency Department. I accept the evidence of Dr Dalgleish that nothing in Ms Fergusson's presentation at that time indicated her condition was unstable.

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81 (1938) 60 CLR 336

87. I find that Dr Dalgleish did not receive a phone call from Melbourne Pathology advising her of the abnormal LFT results and that she did not become aware of these results until after Ms Fergusson's death. I find that Dr Dalgleish's care and management of Ms Fergusson was reasonable and appropriate in the circumstances.

88. I find that Melbourne Pathology faxed the results to the Epworth Hospital Emergency Department on Saturday 28 October 2006 at 2024 hours. However, I also find that no one from Melbourne Pathology made a telephone call to a medical practitioner at Epworth Hospital to communicate the abnormally high LFT and that this was in breach of their own risk guidelines and protocols.

89. I find that it is most likely that the unknown person who initialled the pathology report placed it in Ms Fergusson's medical file without bringing it to the attention of a medical practitioner and therefore the abnormal results remained unknown until it was brought to the attention of Dr Ley later that evening.

90. Although there were discrepancies in the evidence relating to whether Dr Ley received a phone call from Melbourne Pathology, I find on the balance of probabilities that he did not.

91. Dr Ley became involved with Ms Fergusson's care in the context of managing her previously undiagnosed diabetes. Although she was not admitted to the Epworth Hospital under his specific care, when he was informed of her elevated LFT levels he made arrangements to test her paracetamol levels. He actively followed up on her glucose levels on Sunday 29 October 2006 and when advised of her decline in health he arranged to involve the medical fellow in her care. I find that Dr Ley's care and management of Ms Fergusson was reasonable and appropriate in the circumstances.

92. I find that the medical record keeping and communication between health professionals at the Epworth Hospital were less than optimal, however I am unable to find that this caused or contributed to Ms Fergusson's death. Nevertheless, these deficiencies as identified in this finding should serve as a reminder to hospital medical staff of the importance of recording accurate and clear written and verbal communications in relation to patient management.

93. I commend the Epworth Hospital for having implemented a number of improvements to their systems and processes as a result of Ms Fergusson's death. In light of this remedial action and given the passage of time, I do not propose to make any recommendations pursuant to section 72(2) of the Coroners Act 2008.

94. Finally, I wish to express my condolences to Ms Fergusson's family. I acknowledge the grief and devastation that you have endured as a result of your loss.

Pursuant to section 73(1) of the **Coroners Act 2008**, I order that the finding be published on the internet.

I direct that a copy of this finding be provided to the following:

- Ms Anna Cabdi
- Epworth Hospital
- Melbourne Pathology
- Dr Joanne Dalgleish
- Dr Christopher Ley
- Dr Ken Sikaris

Signature:

Coroner Jacqui Hawkins
Date: 17 April 2014