QUEENSLAND COURTS

CORONERS COURT OF QUEENSLAND

FINDINGS OF INVESTIGATION

CITATION:	**Non-inquest findings into the death of Mrs MDF**
TITLE OF COURT:	Coroners Court
JURISDICTION:	SOUTHPORT
DATE:	5 September 2019
FILE NO(s):	2016/5010
FINDINGS OF:	James McDougall, Coroner
CATCHWORDS:	CORONERS: abdominal pain, ischaemic colitis, delay in surgery, documenting communications

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Background

Mrs MDF was 76 years old. She lived in Gilston.

On 27 November 2016 a GP, Dr IK attended upon Mrs MDF at her home. Dr IK recorded that Mrs MDF had abdominal pain associated with her pain. He administered Tramadol and Maxolan intramuscularly at 6.10pm and referred Mrs MDF to Robina Hospital to determine the cause of her generalised tenderness in her abdomen. Mrs MDF was transported via QAS. QAS recorded Mrs MDF had been hyperventilating and very demonstrative with her extreme pain on their arrival. They administered morphine and methoyflourane intravenously. The Robina Hospital Emergency Department (ED) records revealed that Mrs MDF was administered IV fluids and she was given IV morphine and fentanyl. Blood tests from a sample taken at 8.49pm revealed abnormal bicarbonate, anion gap, glucose, urea, creatinine, GFR, bilirubin, aspartate transaminase and osmolality (lactate dehydrogenase was not measured).

A CT scan of Mrs MDF's abdomen was undertaken at approximately 8.30pm and the results were available at 9.49pm. At 9.43pm, Dr TG made an entry in the medical records. He recorded that on examination Mrs MDF was distressed with abdominal pain and appeared pale and diaphoretic. Her heart rate was 110bpm, BP 133/86 mmHg, and she was afebrile. He recorded that Mrs MDF had progressive onset of abdominal pain since 1.00pm which was sharp and colicky and radiating to her lower back. She had nil nausea or vomiting. Heart sounds were normal and she had good air entry to lung bases.

Mrs MDF's abdomen was soft and generally tender. An urgent CT scan of Mrs MDF's abdomen was arranged which was originally without contrast but converted to contrast as there were concerning features of abdominal pain on the non-contrast CT. Dr TG recorded his impression of Mrs MDF was that she was clinically dehydrated and queried whether she had an ischaemic gut. The surgical registrar Dr SK was notified and would review Mrs MDF. A CT scan demonstrated findings suggestive of ischaemic bowel and collapsed inferior vena cava indicating profound shock. Mrs MDF was admitted and subsequently underwent an emergency laparotomy at approximately 7.00am on 28 November 2016. Unfortunately, Mrs MDF's condition did not improve post-operatively. Following consultation with her family regarding her poor prognosis, treatment was withdrawn and Mrs MDF died on 30 November 2016.

Autopsy Report

Forensic Pathologist, Dr Dianne Little conducted an external and partial internal post-mortem examination on 5 December 2016.

Dr Little concluded that Mrs MDF died from multi-system organ failure due to or as a consequence of ischaemic small intestine and bowel.

Dr Little noted that there was no cause for Mrs MDF's ischaemic bowel identified during the post-mortem examination (i.e. there were no obstructions to the arteries or veins of the bowel) nor did the surgical records describe any mechanical obstruction to Mrs MDF's bowel (such as adhesions or twisting of the bowel).

Patient Safety Mortality Review

A patient safety mortality review appears to have been commenced but not completed (i.e., it records having left messages with Dr NA and Dr AM but no summary of the information they provided. The Patient Safety Co-ordinator (PSC) noted that Dr RK advised:

- He was aware of CT result at 11.00pm and believed conservative management would be best but to advise him of any deterioration.
- He was not contacted overnight by Dr SK or Dr AM.
- The first he became aware of the deterioration was when the anaesthetics team contacted him.
- *'believes ICU Consultant should have come in if the ICU Reg was concerned, it was his understanding that this did not happen'*
- *'the ICU Reg was out of their depth should have called the Consultant'.*

Robina Hospital ICU Morbidity and Mortality Plan

The ICU Morbidity and Mortality Plan dated 14 December 2016 noted two concerns:

1. No ICU notes.
2. Delay in taking the patient to the operating theatre.

The recommendations made were:

1. Documentation of communication with Consultants and between ICU staff should be recorded. The Director was going to discuss this with the registrars.
2. If there is a delay, the Consultant should be contacted [it is unclear if the reference is to contacting the ICU Consultant or the Surgical Consultant]. Again, the Director was going to discuss this with the registrars.

Statement of Dr RK

Dr RK was the Consultant Surgeon who Mrs MDF was admitted under, however he first physically reviewed Mrs MDF prior to her emergency surgery on 28 November 2016. He has provided a statement in response to a Form 25 request.

Dr RK says that the CT did not show a clear indication for immediate surgery, rather it showed ischemic colitis which is caused by a generalised hypoperfusion state rather than an embolic or sudden arterial occlusion. Dr RK considered that this condition responds well to conservative management with antibiotics, correction of the underlying hypotension and does not require an urgent operation.

Dr RK recalls being advised of Mrs MDF's presentation at 11.00pm and he provided the plan to the surgical registrar that Mrs MDF was to be admitted to the ICU for fluid resuscitation, antibiotics and supportive measures. Dr RK says that he asked to be notified if there was further deterioration in Mrs MDF's condition.

Dr RK did not receive any further contact until 5.00am. He advised it takes approximately one hour from the time a decision is made to operate for the operation to commence – this takes into consideration the time for an operating theatre to be made available, staff to be called in etc. He attended and reviewed Mrs MDF in the ICU at the same time as the Consultant Anaesthetist was reviewing Mrs MDF. Dr RK says that the operation was delayed as Mrs MDF was in respiratory distress and she required intubation before going to theatre. Dr RK considered that Mrs MDF should have been intubated earlier however, the ICU registrar on duty (Dr NA) was not skilled in performing this task independently.

Statement of Dr GC

Dr GC is a specialist in intensive and emergency care, employed by GCHHS. He provided two statements – one in response to a Form 25 requesting a statement from a suitable senior ICU representative and the second in response to a Form 25 requesting a statement from a suitably qualified person.

Dr GC considered Mrs MDF was a 'reasonably high' risk of death upon her presentation to Robina Hospital based on the following risk factors:

Pulse rate of above 100

- Renal impairment which did not reduce on resuscitation measures
- Lactate dehydrogenase (LDH) > 350.
- Abdominal pain without bleeding.
- CT scan was
    - Consistent with ischemic colitis.
    - Consistent with gross shock – Hb of 16.2, collapsed inferior venacava on CT and gross free fluid in the abdomen.
- Raised lactate.
- Hypothermic.

Dr GC was of the view that the CT scan was performed efficiently. The contrast study indicated no arterial occlusion requiring the intervention of a vascular surgeon.

Dr GC also considered that a period of non-operative management was appropriate because most episodes of ischemic colitis settle. Only 10 – 20% will develop a necrotic colon and require surgery. Of those patients (requiring a laparotomy) there is a 40 – 80% mortality rate. He indicated that the *'decision to manage the patient non-operatively had a reasonable chance of failure, and subsequent laparotomy would be required'* and in those circumstances Mrs MDF's management required detailed communication between senior [I presume he is referring to Consultant level] surgical and ICU staff which did not occur.

For Mrs MDF to have the best chance of survival, Dr GC considered that a detailed plan was required which should have included the following:

- Mrs MDF be placed into an area where ongoing resuscitation and observation was possible – this was done as Mrs MDF was transferred to ICU.
- A clear plan contained in the records detailing:
    - the result of discussions between specialist teams as to the risk/benefit of surgery as opposed to observation; and
    - the criteria for failure of observation and need for surgery.

Overall, Dr GC was critical of the following:

- Lack of communication between teams.
- Electronic records were not made by Dr SK and Dr NA until after Mrs MDF was taken to theatre.
- There is no entry by Dr RK .
- Dr AM did not make an entry in the records until 24 hours after Mrs MDF's admission [Dr GC may have mistakenly assumed a different Consultant was on call as Dr AM did not make a record in the medical records until over 7 days after the subject events].
- Neither the Consultant Surgeon nor Intensivist physically reviewed Mrs MDF from the time of presentation to theatre. Decision making regarding Mrs MDF's care was based

on the interpretation and assessment of Dr SK and Dr NA.
- The contemporaneous blood gas samples show a continuum of deterioration.
- Failure of Dr SK to record the decision to maintain a non-operative approach at approximately 3.00am.
- Timing of surgery appeared to be determined by the near arrest of Mrs MDF not due to any communication with clearly delineated parameters as determined between the Consultant Surgeon and Intensivist.

Dr GC considered that the post-operative management (whilst futile) of Mrs MDF was appropriate.

Dr GC considered that there were three potential opportunities for detailed re-assessment of the management plan to have occurred:

- On admission to ICU at midnight:
    - By that time, Mrs MDF had received four hours of fluid resuscitation and this should have produced a greater fall in lactate which would have offset the acidaemic effort of the chloride resuscitation (Dr GC says the change between these results between ED and ICU was only marginal).
    - The net effect of the blood gas results is that Mrs MDF had a worsening metabolic acidosis from the initial presentation and warranted senior staff attendance because if the decision not to proceed to theatre was continuing then very detailed and documented communication between Dr RK and Dr AM was required to clearly delineate the subsequent management.
    - Considers the subtleties of blood gas results were beyond the scope of Dr SK and Dr NA, particularly as they were junior doctors not on vocational training for the respective specialties.

- At commencement of vasopressors – considered at 1.30am and commenced between 1.30am and 3.00am:
    - Indicates further escalation of treatment.
    - Again no communication between Consultants.
    - Each junior doctor communicating in ad hoc fashion with specialist and then communicated their interpretation of that conversation to the other junior doctor who then communicated their interpretation of that conversation to their specialist – the two responsible Consultants should have directly communicated with each other.
    - Contemporaneous notes indicates a frustration with the management of Mrs MDF however nurses did not report directly to the ICU consultant.

- At Mrs MDF's 'sudden demise' at 3.00am:
    - Another opportunity for specialist attendance which did not occur.
    - Contemporaneous blood gas results reveal ongoing process which had resulted in Mrs MDF's physiological reserve being exhausted.

Despite being critical of the management of Mrs MDF, Dr GC says *'I cannot state that surgery at any time would have changed the outcome, however what prospect there was for survival was reduced due to the lack of co-ordinated system of care'* and as a result of the *'findings of the laparotomy it is not certain survival even with an operation on arrival would have altered the outcome. The lack of direct communication between specialist staff meant that what*

chance there may have been for a successful outcome was removed'.

Root Cause Analysis

In response to Dr GC's review, a Root Cause Analysis (RCA) was commissioned on 23 August 2017.

The RCA notes that Dr SK was initially of the view that Mrs MDF required surgical intervention however Dr RK was of view that ischaemic bowel and conservative management was appropriate. Dr RK did not personally review Mrs MDF, the CT scan or pathology results. Due to the lapse in time, neither Dr SK nor Dr RK could recall exactly what was discussed and if Mrs MDF's arterial blood gases or LDH levels were discussed.

The RCA made the following comment:

> *It was noted however that the diagnosis of ischaemic colitis was not likely given the extent of bowel involvement on the CT and the metabolic derangement which would suggest more extensive bowel ischaemia was present at presentation. This discordance may have been detected earlier if the consultant surgeon had reviewed the patient personally.*

The RCA considered that if Dr RK was aware of all of the required clinical details (i.e. LDH level etc) then there was less likely a requirement for Dr RK to personally review Mrs MDF.

The RCA was critical of Dr SK recording *'please notify if clinically deteriorating'*. This was not a clear delineated set of parameters for when Mrs MDF would require surgery and should have involved discussions with Mrs MDF regarding the risks and benefits of surgery.

Dr AM told the RCA team that she:

- Requested Dr NA clarify with the surgical team that conservative management was the management course given Mrs MDF's presentation. This was confirmed by Dr NA in a second telephone call.
- Advised Dr NA that strict parameters for deterioration should be documented prior to Mrs MDF's admission to ICU.

Dr NA refused to participate in the RCA process.

The RCA team considered that the reduction of Mrs MDF's lactate from 4.5mmol/L (ED) to 3.8mmol/L (ICU) was misinterpreted as improvement however in context of 3 litres of fluid resuscitation this was a worsening metabolic acidosis and required Consultant to Consultant discussion regarding Mrs MDF's management plan.

Nursing staff advised the RCA team that at 1.30am Dr NA contacted Dr AM to update on Mrs MDF's deteriorating arterial blood gas results and hypotension. They advised that whilst Dr NA did not ask Dr AM to review Mrs MDF, they considered the clinical information provided was sufficient to imply this. Dr AM told the RCA team the telephone call was about other patients but that she asked about Mrs MDF. Dr AM was advised that Mrs MDF was hypotensive and increasing lactate but was being reviewed by Dr SK and the plan included transfer to theatre. Dr AM recommended a central venous catheter and commencement of vasopressors prior to transfer to theatre. Dr AM was not asked to review Mrs MDF and there was no sense of urgency. When Dr AM was contacted at 5.30am, it was discovered Mrs MDF had not gone to theatre at 2.00am.

Dr SK advised the RCA team that he considered Mrs MDF's deterioration was caused by a pulmonary oedema and escalation to Dr RK was not required.

The RCA team recorded that there was inconsistency between assessment of Mrs MDF's clinical status and her actual deteriorating clinical condition by Dr SK and Dr NA. They considered this was due to the lack of a clear management plan inclusive of escalation parameters and triggers for Mrs MDF and resulted in delayed involvement from Dr AM and Dr RK.

The RCA team noted that nursing staff were concerned with Mr MDF's management from 2.45am onwards which was appropriately escalated to the ICU team leader, Dr RK and Dr NA. The nursing staff did not escalate to Dr AM as they observed Dr NA's telephone call with Dr AM. In retrospect, the nursing staff acknowledged they should have contacted Dr NA directly.

The RCA team considered that at the time of the subject events, the ICU at Robina was a level 4 whereas the ICU at Gold Coast University Hospital (GCUH) was a level 6. This led to a perception that Robina ICU had a lower clinical acuity than those patients admitted to GCUH ICU. Additionally, the Robina ICU did not have a permanent director nor were junior staff on the training program (level 4 ICU's are only suitable for accredited training for short periods of time).

The RCA team made the following recommendations:

- All medical officers in the surgical division be reminded of the professional standards and expectations of the Gold Coast Hospital and Health Service. This involved the presentation of this matter (de-identified) at departmental meetings for further learning.
- Robina ICU to operate as extension of level 6 ICU at GCUH and cross campus ICU Director with Deputy ICU directors at each site be appointed.

Expert report from Dr Phil Lockie, Surgeon

Dr Lockie has provided an independent expert report.

Dr Lockie considered that Mrs MDF's admission to hospital and the initial treatment she received (CT scan to investigate abdominal pain and IV fluids) was appropriate. He also was of the view that it was appropriate to have a period of resuscitation before undergoing definitive treatment.

Dr Lockie considered that at the time of Mrs MDF's admission (or just prior) to her admission to ICU at 11.45pm, suffered a clinical deterioration in her haematological parameters (drop in pH and increasing base) despite aggressive resuscitation in the ED. These indicated that Mrs MDF was not responding to treatment and required surgical intervention in the form of a laparotomy.

Dr Lockie disagreed with Dr RK's assertion that Mrs MDF had initial improvement on her admission to the ICU and then later deteriorated as the blood gases on admission to ICU failed to show appropriate improvement that would be expected at that time given the period of fluid resuscitation.

Mrs MDF continued to deteriorate at 1.30am – her pH remained unchanged however the base excess deteriorated, as did her lactate. Mrs MDF's respiratory function also showed evidence of deterioration.

Dr Lockie says that at this point a decision should have been made to take Mrs MDF to theatre. He considered, that the point where a central line was being inserted and inotropes started was sufficient to trigger decision to proceed to theatre or at the very least, for Mrs MDF to be reviewed by a Consultant.

Dr Lockie considered that the records clearly demonstrate Dr SK and Dr NA failed to appreciate that Mrs MDFs condition had not improved since her admission, despite fluid resuscitation.

Dr Lockie noted the discrepancy in the medical records as Dr NA recorded that Dr SK spoke with Dr RK and the decision was made to continue with conservative management however Dr SK's notes do not record this and Dr RK says he was not contactable.

Dr Lockie considered that by *'the time the decision was finally made to take the patient to theatre she was virtually moribund and her chances of survival were negligible'.*

Ultimately, Dr Lockie made the following criticisms:

- Failure by Dr NA and Dr SK to appreciate Mrs MDF's deteriorating condition.
- There was no written protocol/process outlining what was to be considered a deterioration in Mrs MDF's condition and escalation in treatment and specifically when surgery should be considered. Ideally there should have been a plan agreed between Consultants that would assist junior staff know when to call senior staff.
- Considers that if a formal policy existed, then nursing staff might have felt empowered to escalate to Dr AM.
- Dr NA refers to being with other patients – workload may have been an issue.
- There is a lack of contemporaneous notes by clinicians, namely:
    - Dr NA appears to have made notes on 12 December, some two weeks after the events and he doubts reliance can be placed on them. This criticism is based on the records that are most likely incorrectly dated. It is most likely these records were made at approximately 9.30am on 28 November.
    - Dr SK made notes on 28 November, two days later. This criticism is somewhat misguided – the timing of Dr SK's entry indicates he made an entry between 12 – 15 hours after the subject events (and had been prevented from doing so due to the management of other patients).
    - Dr AM made notes on 6 December, 9 days later. This appears to be a fair criticism.

Dr Lockie agreed with Dr GC that risk of death upon presentation was high given she had a number of poor prognostic features regarding her ischaemic colitis and he refers to a paper in the American Journal of Gastroenterology to support this. I agree with his conclusion that Mrs MDF's chances of surviving this event were slim. However, there was a window of opportunity, shortly after she was admitted to hospital, to intervene surgically and this would have provided her with her only chance of survival. The opportunity was missed due to the failure of the surgical and intensive care teams to recognise her deteriorating condition. However, it must be stated, that even had Mrs MDF been taken to theatre in a timely fashion at around about midnight, there is no way of knowing whether she would have ultimately survived.

Conclusion

It appears that the clinical care provided by Drs SK and Dr NA on 27 and 28 November 2016 was deficient as they failed to appreciate Mrs MDF's deteriorating condition warranted surgical

intervention. It also appears that the supervision of these doctors by Dr AM and Dr RK may also have deficient in that they should have reviewed Mrs MDF and/or documented a very clear management plan to manage any deterioration in Mrs MDF's condition. The criticisms made by both Dr GC and Dr Lockie on these issues are consistent.

The autopsy confirmed, and I find, that Mrs MDF died on 30 November 2016 at Robina Hospital. The cause of death was multisystem organ failure, due to, or as a consequence of ischaemic small intestine and colon.

Having regard to the investigations and reviews under taken into these events the investigation would not be advanced further by proceeding to inquest and I find that it would not be in the public interest to proceed to inquest. I refer my findings to the Office of the Health Ombudsman.

I close the investigations.

James McDougall
Coroner
CORONERS COURT OF QUEENSLAND - SOUTHERN REGION
5 September 2019