

LESSONS FROM THE AUDIT

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ROYAL AUSTRALASIAN
COLLEGE OF SURGEONS



Queensland Audit of Surgical Mortality



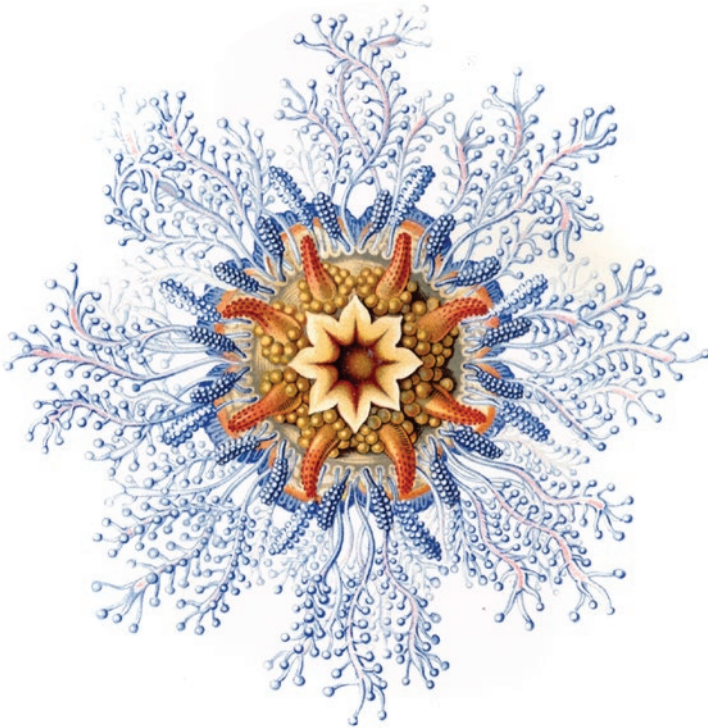
Northern Territory Audit
of Surgical Mortality



Queensland
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NORTHERN
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Introduction

The *Lessons from the Audit* (Volume 17) presents five short case studies.

Importantly, these case studies focus on the elderly surgical patient and highlight the importance of multidisciplinary teams (MDTs) in the care of the elderly surgical patient.

See related resources below.

The QASM assessors for these case studies stated that often collegiate advice was not sought and substantial opportunity was lost to care more appropriately for these elderly patients.

As always, I welcome your feedback regarding these case studies.

Yours sincerely,

John North

QASM and NTASM Clinical Director

Resources:

Principles and Practice of Geriatric Surgery

<http://www.springer.com/gp/book/9781441969989>

Optimal preoperative assessment of the geriatric surgical patient: a best practices guideline from the American College of Surgeons National Surgical Quality Improvement Program and the American Geriatrics Society.

<https://www.facs.org/~media/files/quality%20programs/geriatric/acs%20nsqip%20geriatric%202016%20guidelines.ashx>

Hartgerink JM, Cramm JM, Bakker TJEM, van Eijsden AM, Mackenbach JP, Nieboer AP. The importance of multidisciplinary teamwork and team climate for relational coordination among teams delivering care to older patients. *JAN*. 2014;70(4):791-9. <https://www.ncbi.nlm.nih.gov/pubmed/23980594>

Disclaimer:

This booklet is produced for Fellows of the Royal Australasian College of Surgeons. Information is obtained under a quality assurance activity. Detail that may identify individuals has been changed, although the clinical scenarios are based on real cases.

Shortened forms

ASA	American Society of Anesthesiologists
CPR	cardiopulmonary resuscitation
HDU	high dependency unit
ICU	intensive care unit



Contents

Case study (1): Vascular Surgery	3
<i>Is there a place for multidisciplinary teamwork in clinical care pathways?</i>	
Case study (2): Neurological Surgery	4
<i>Falls at home are an ever present danger. Can the multidisciplinary team assist?</i>	
Case study (3): Orthopaedic Surgery	5
<i>When are too many comorbidities too many for surgery?</i>	
Case study (4): Urological Surgery	6
<i>Not fit for operation: call for the multidisciplinary team?</i>	
Case study (5): Orthopaedic Surgery	7
<i>Multidisciplinary teams and the fractured neck of femur: an important relationship?</i>	

Vascular Surgery

Case study 1: *Is there a place for multi-disciplinary teamwork in clinical care pathways?*

The QASM assessor stated: *"...the excessive elevated neutrophil leucocytosis which was present in this patient two days prior to her demise (and in the absence of clearly defined focal symptoms or signs), raises the possibility of mesenteric ischaemia and so called "silent" small bowel infarction which could have been a pre-terminal event..."*

The patient:

- was female (late 80s)
- was an emergency admission
- had comorbidities (Type 2 diabetes mellitus, ischaemic heart disease, ventricular dysfunction and atrial fibrillation, significant renal decompensation).

What happened at the hospital?

- For several weeks prior to admission, this patient had a chronic major right lower limb ischaemia with significant pain.
- She was admitted to a regional hospital with progressive ischaemia and associated pain which was difficult to control.
- Ten days after being admitted to the regional hospital, she was transferred to a major hospital.

- One day after being admitted to the major hospital, a right above-knee amputation was performed.
- The surgery was performed without significant incident.
- The duration of the surgery was acceptable. Although blood loss was not recorded, it can be assumed from the intravenous fluids which were administered that blood loss in this setting was not excessive. Throughout the surgery her haemodynamics remained satisfactory, as they did in the immediate postoperative period.
- Postoperatively, she deteriorated which could not be reversed in spite of appropriate assessment and intervention. She was transferred to a coronary care unit on the day of her death.

What issue is highlighted by this case?

- Where was the multidisciplinary team or the palliative care team in the earlier phase of this patient's admission?



Neurological Surgery

Case study 2: *Falls at home are an ever present danger. Can the multidisciplinary team assist?*

The QASM assessor stated:

The patient: *"...anaesthesia and surgery in this case was high risk; the decision had to be made by the patient's family noting that without surgery the subdural haematoma would lead to the patient's death; the family chose anaesthesia and surgery..."*

The patient:

- was male (late 80s)
- was an elective admission
- had comorbidities (chronic renal failure; pulmonary hypertension with cardiac failure)
- had two previous myocardial infarcts
- had undergone extensive melanoma surgery.

What happened at the hospital?

- The patient was on aspirin and had fallen five days prior to admission.
- He was admitted for an opinion regarding the drainage of a subdural haematoma which was causing right-sided paralysis and depression on a conscious level.
- The left-sided subdural haematoma was causing significant mass effect with hemiparesis. If left untreated, it would create a significant chance of causing death.

- The registrar contacted the patient's family. Consent and request for surgery was given. A detailed itemised consent form was provided.
- The patient was given pooled platelets prior to surgery because he was on aspirin.
- A craniotomy was performed. The left acute-on-chronic subdural haematoma was evacuated with satisfactory anaesthetic and surgical findings (and records).
- Postoperatively, his blood pressure dropped on two occasions. He required immediate cardiopulmonary resuscitation (CPR). His pupils remained equal. His family were again contacted. He failed to respond to ICU management including adrenalin infusion.
- It was felt that his death was of cardiac origin. This would be the most likely, noting his immediate cardiac arrest after waking from surgery.

What issue is highlighted by this case?

- Anaesthetic and surgery was high risk. However, without surgery, the subdural haematoma would have led to the patient's death. The family chose for anaesthetic and surgery.

Orthopaedic Surgery

Case study 3: *When are too many comorbidities too many for surgery?*

The QASM assessor stated:

“...the statistical facts of an elderly patient who sustains a fractured neck of femur is that one-third of the patients will be deceased within twelve months with probably up to 10% deceased in a shorter term due to their general physical state. Hence at the time of admission and the time of surgery, this patient was at high risk of morbidity and mortality...”

The patient:

- was female (late 80s)
- was an emergency admission
- had comorbidities (ischaemic heart disease; gastro-oesophageal reflux; anaemia; chronic renal failure; hypothyroidism)
- had a pacemaker
- was on steroid therapy.

What happened at the hospital?

- After a fall, the patient was admitted with a fractured neck of femur.
- At the time of admission, she was in congestive cardiac failure with signs of pulmonary oedema. Haemoglobin was 87 g/L.

- Initial management included correction of her anaemia with transfusion using packed cells over two days.
- A medical consultation confirmed extensive cardiac failure.
- Medical treatment was instituted to improve her chest and cardiac status.
- Two days post-admission, cardiology consultation deemed her fit for anaesthetic.
- Four days post-admission, uncomplicated surgery was performed (a routine intramedullary hip screw was inserted).
- Postoperatively, her cardiac and respiratory status remained uncontrolled resulting in progressive deterioration. She died 23 days post-admission.

What issue was highlighted by this case?

- Delay to surgery was due to medical consultation, correction of her anaemia and an attempt to improve her cardiac status. The problem is clearly that on admission, she was already severely compromised. The actual delay from time of medical clearance to surgery was 24 hours.



Urological Surgery

Case study 4: Not fit for operation: call for the multidisciplinary team?

The QASM assessor stated:

“...this case highlights the risk of operating in elderly patients where physiological reserve is limited. One could possibly argue that with more intensive perioperative monitoring and closer involvement of the medical team from the outset, perhaps with the use of a high-dependency unit that the likelihood of this outcome occurring may be diminished...”

The patient:

- was female (early 80s)
- was an elective admission
- had recurrent urinary tract infections
- had a partial staghorn calculus in kidney
- had a history of deep vein thrombosis.

What happened at the hospital?

- This patient was hypertensive on admission and was encouraged to continue antihypertensive medications in the perioperative period.
- There were no acute changes on her echocardiogram and she gave no history of chest pain or shortness of breath.
- On the day of admission, in the radiology department, the patient had a percutaneous nephrostomy inserted (less than one hour). There were no complications.
- On return to the ward, she was noted to be normotensive with good oxygen saturations. The following morning there were no concerns.

- Day two post-admission, she was noted to be hypertensive and tachycardic. She was afebrile.
- Day three post-admission, she had nausea and abdominal distention. Examination revealed a non-tender but distended abdomen. She did not have a raised white cell count and her creatinine was normal. She was treated medically.
- A postoperative nephrostogram showed no residual stone and no obstructions or leakage.
- Day four post-admission, she was reviewed by the urology team and a cardiology consult was requested.
- The possibility of a pulmonary embolism was considered and she was commenced on anticoagulants.
- Day five post-admission, her condition deteriorated and she suffered a significant myocardial infarction and went into cardiogenic shock. A chest X-ray later that day revealed free gas under both diaphragms.
- She was reviewed by the general surgical team. They noted that there was no gas under her diaphragms. She was deemed not fit for laparotomy.
- Unfortunately, her condition continued to deteriorate and she died day five post-admission.

What issue is highlighted by this case?

- This patient’s hypertension was noted preoperatively. This case highlights the risk of operating on elderly patients with limited physiological reserve.

Orthopaedic Surgery

Case study 5: Multidisciplinary teams and the fractured neck of femur: an important relationship?

The QASM assessor stated:

“...following the surgery, the patient was admitted to the high dependency unit. At that stage, a number of problems became evident: fluid overload, deteriorating renal function and a difficulty in controlling pain...”

The patient:

- was female (late 80s)
- was an emergency admission
- had comorbidities (hypertension, congestive cardiac failure, anaemia)
- had mobility problems.

What happened at the hospital?

- After a fall, the patient was admitted with a fractured neck of femur.
- An intravenous line was inserted. Initially three litres of normal saline per day was ordered. An indwelling catheter was inserted.
- On the day of admission, she was reviewed by the orthopaedic registrar. Plans were instigated for surgery to pin and plate the fracture the following day.
- Day one post-admission, she was reviewed by the orthopaedic geriatric

registrar and signs of congestive cardiac failure were found.

- An echocardiogram was suggested preoperatively. There was a delay in acquiring the echocardiogram. Electrolytes were within normal range and the intravenous fluids were rapidly slowed to two litres per day.
- The patient’s family noted that she was confused.
- Day two post-admission, anaesthetic review occurred. At that stage, the haemoglobin was 81 g/L and a blood transfusion was organised.
- Surgery was planned for day four post-admission. A bed in the high dependency unit had been booked.
- Surgery was cancelled because potassium was 3.0 mmol/L (reference range: 3.5-5.2 mmol/L). Potassium supplements were added and surgery was able to go ahead on day five post-admission.
- There did not appear to be any complications with the surgery.
- Following surgery, the patient was admitted to the high dependency unit. At that stage, problems became evident. These included fluid overload, deteriorating renal function and difficulty in controlling her pain.



- Day three postoperation, she was able to be returned to the ward. Review showed continuing pain around the surgical site, difficulty in mobilising and difficulty weight bearing.
- Day six postoperation, a urinary tract infection was diagnosed. With mobilising difficulties, the patient stayed on the ward. Abdominal distension became a problem (presumably secondary to the narcotic analgesia). Subsequent investigation showed faecal loading.
- The difficulty in mobilising continued and the patient's thigh was noted to be swollen.
- Day 17 postoperation, increased ooze from the wound was noted. The wound was washed out three weeks postoperatively. A copious amount of pus was found. *Enterobacter cloacae* was grown. The patient once again was treated in the high dependency unit.
- Her medical condition deteriorated and it would appear that there was a significant cardiac event. There was a rise in troponin.
- Discussions were held with the patient's family and the decision was made for limited resuscitation measures.
- Four weeks following surgery, the patient was transferred to the palliative care unit and died three days later.

What issue is highlighted by this case?

- Lack of early geriatric consultation and palliative care consultation.



Queensland Audit of Surgical Mortality

Telephone: 07 3249 2971

Facsimile: 07 3391 7915

Email: qasm@surgeons.org

Post: PO Box 7476
East Brisbane QLD 4169

Web: www.surgeons.org/qasm



Northern Territory Audit
of Surgical Mortality

Telephone: 07 3249 2973

Facsimile: 07 3391 7915

Email: ntasm@surgeons.org

Post: PO Box 7385
East Brisbane QLD 4169

Web: www.surgeons.org/ntasm

