



**Royal Australasian College of Surgeons**  
**Australian Capital Territory Audit**  
**of Surgical Mortality (ACTASM)**

# **REPORT 2016**



ROYAL AUSTRALASIAN  
COLLEGE OF SURGEONS



The Royal Australian  
and New Zealand  
College of Obstetricians  
and Gynaecologists  
*Excellence in Women's Health*



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COLLEGE OF ANAESTHETISTS



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The information contained in this report has been prepared under the auspices of the Royal Australasian College of Surgeons, Australian Capital Territory Audit of Surgical Mortality Management Committee, which is a declared quality assurance committee under the *Health Act 1997*.

The information contained in this report has been prepared by the Royal Australasian College of Surgeons, Australian Capital Territory Audit of Surgical Mortality Management Committee. The Australian and New Zealand Audit of Surgical Mortality, including the Australian Capital Territory Audit of Surgical Mortality, has protection under the Commonwealth Qualified Privilege Scheme under Part VC of the *Health Insurance Act 1973* (Gazetted 25 July 2016)

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## CHAIRMAN'S REPORT

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I am pleased to present the 6th report for the Australian Capital Territory Audit of Surgical Mortality (ACTASM).

The ACTASM continues to develop and implement feedback processes on audit findings. In November 2016, the ACTASM collaborated with the Australian Capital Territory (ACT) regional office of the Royal Australasian College of Surgeons (RACS) and participated in the ACT Annual Scientific Meeting program. The theme was 'using audits and evidence to improve practice'. Within this program, the ACTASM focused on delivering information on the relevance of audits in surgery. Based on the evaluation forms, the content of the meeting was positively received, particularly the audit-based information. It is great to see growing support for the audit process. It is evident that this process is regarded as a valuable educational and professional development tool. The audit team is very open to feedback on clinical education areas that could be addressed in the future.

The RACS understands the importance of implementing processes to improve clinical practice. In 2016 the Research, Audit and Academic Surgery (RAAS) division of RACS released a guideline reference document for conducting effective morbidity and mortality meetings to improve patient care.<sup>(1)</sup> This has been well received nationally; noting that the use of the guidelines to identify levels of effectiveness of morbidity and mortality meetings has valuable clinical application.

The ACTASM has had delays in pushing forward with the electronic submission of surgical case and first-line assessment forms. However, this remains at the forefront of our priorities. In the audit process, the accuracy of the data input is critical. Electronic submission removes the often difficult problem of deciphering handwriting (including mine). We endeavour to be a reputable audit process and this involves implementing processes that ensure accurate and timely data. Our efforts to enhance the quality of the data continue, with changes to mandatory field completion being introduced as part of the interface updates scheduled for late 2017. Surgeons inputting case information via the Fellows Interface will be prompted for more information when fields are left incomplete, and this will help ensure that the audit has full data sets that are representative of the clinical landscape.

Internal changes have occurred within the audit team, with the transition of the ACTASM project manager role from an ACT Health to a RACS position. How this role supports the audit process and those involved remains the same. I am happy to welcome Ms Angie Clerc-Hawke to the role and the audit team. I would also like to thank Ms Katie McDonnell for her valuable contribution as acting ACTASM project manager.

Finally, I would like to thank the ACT Department of Health and RACS for their support of ACTASM, as the audit would not be possible without this assistance. I would also like to extend my gratitude to all my colleagues who have assisted ACTASM by promptly submitting case forms, assessing cases, serving on the management committee, or who have contributed to the workshops. The audit can only thrive if we continue to enjoy this high level of support from all of you.

**Dr John Tharion**  
Clinical Director

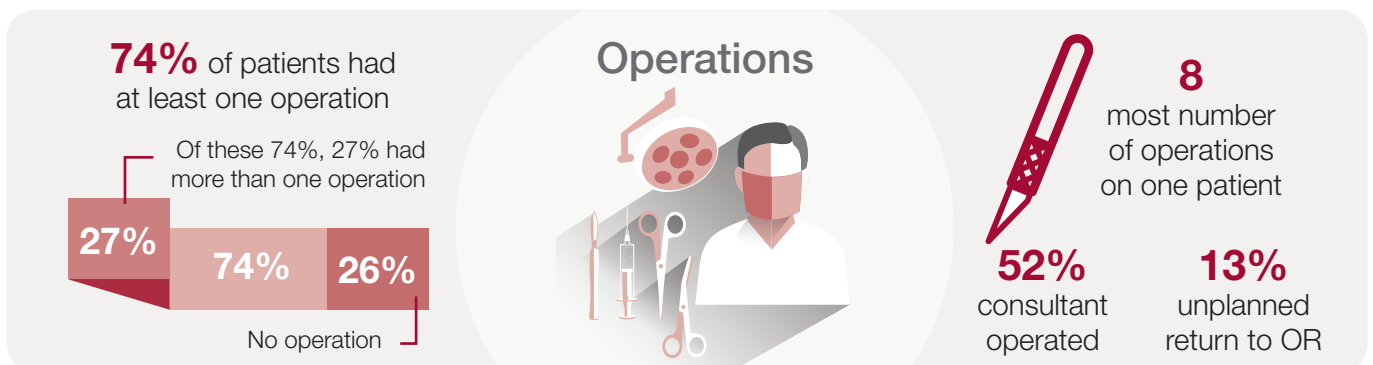
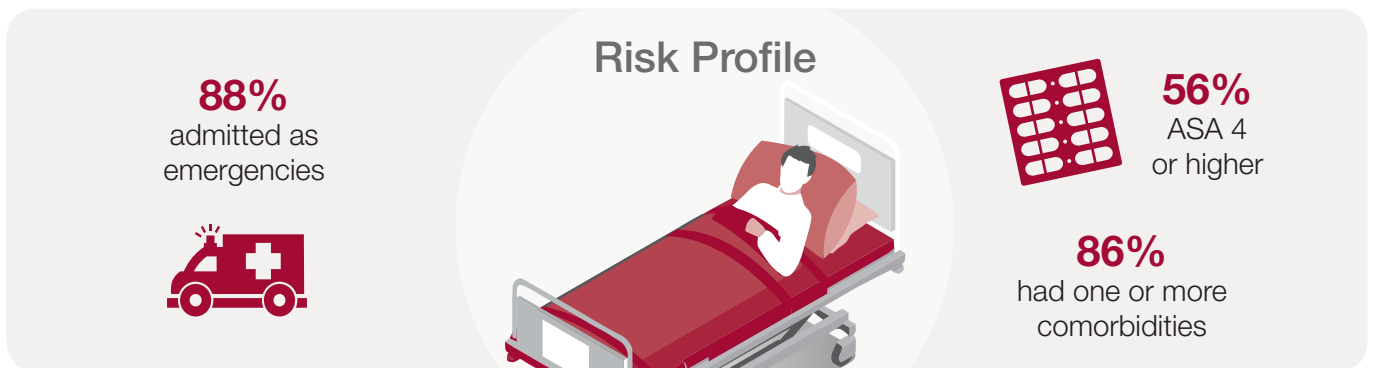
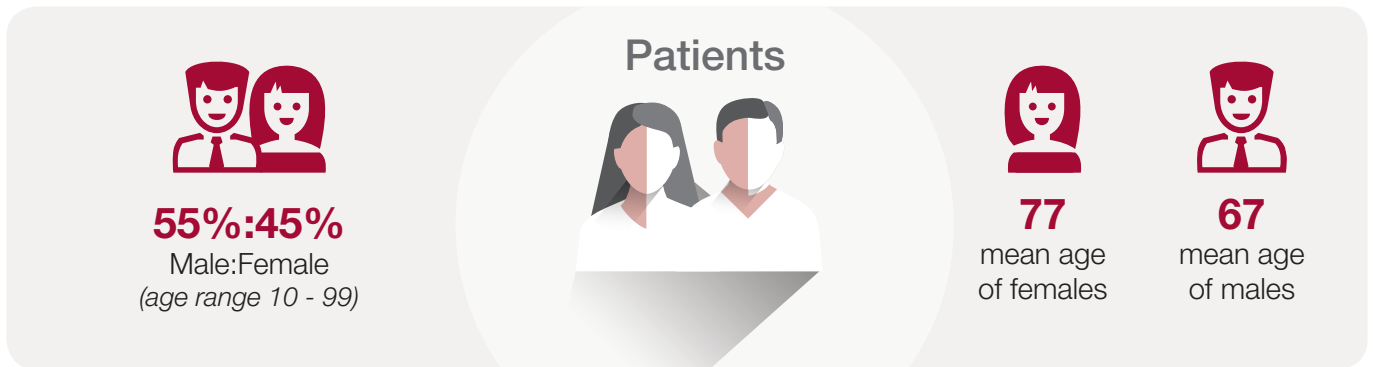
# SHORTENED FORMS

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ACT	Australian Capital Territory
ACTASM	Australian Capital Territory Audit of Surgical Mortality
ANZASM	Australian and New Zealand Audit of Surgical Mortality
ANZCA	Australian and New Zealand College of Anaesthetists
ASA	American Society of Anesthesiologists
DVT	deep vein thrombosis
NSQHS	National Safety and Quality Health Service
RAAS	Research, Audit and Academic Surgery
RACS	Royal Australasian College of Surgeons
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists

# EXECUTIVE SUMMARY – ACTASM 2016

The Australian Capital Territory Audit of Surgical Mortality (ACTASM) is an audit process that provides an independent, external peer review of all surgically-related deaths within the Australian Capital Territory (ACT). It is systematic, objective and confidential, and its purpose is to inform and improve surgical practice, with the ultimate goal of improving the quality of patient care.



## Transfers



**45%**  
of cases were transferred into audited hospital

**12%**  
of transfer cases raised issues of delay from pre-transfer hospital



**100%**  
had sufficient clinical documentation



**72%**  
of patients received care in a Critical Care Unit

**85%**  
DVT prophylaxis used in cases

## Risk Management



**1%**  
of cases identified fluid balance issues

**34%**  
of patients died with a clinically significant infection



## Infection



### these infections were

**31%** Intra-abdominal sepsis

**23%** Pneumonia

**23%** Septicaemia

**95%**  
of cases had minor or no issues identified



**5%**  
of cases had serious issues identified

## Peer review outcomes



**0%**  
of issues were considered definitely preventable

**76**  
cases had individual surgeon feedback provided



**2**  
hospitals had clinical governance reports provided

## Feedback



**100%**  
positive feedback from ACT Seminar  
(55 attended)



Third edition of CNR booklets circulated

Table 1: ACTASM and national comparison, 2016 audit period		
Areas for national comparison	ACTASM	ANZASM
Surgeon participation	97%	98%
Hospital participation:		
Public	100%	100%
Private	100%	92%
Closed cases at year end	76	3,382
Admissions:		
Emergency	88%	86%
Elective	12%	14%
Gender:		
Male	55%	55%
Female	45%	45%
Median age for males and females (years)	67 and 77	75 and 82
ASA status $\geq 4$	56%	60%
Admitted with one or more comorbidities	86%	90%
Cases with perceived risk of death considerable or expected (as perceived by the surgeon)	64%	62%
Issues with fluid balance	1%	4%
Patients who had one or more procedures <sup>^</sup>	74%	77%
Patients with unplanned return to theatre	13%	14%
Patients with postoperative complications	23%	34%
Patients with anaesthetic-related issues	0%	7%
Procedures abandoned	7%	5%
Patients transferred	45%	26%
Total number of clinically significant infections	34.2% (26/76)	32.9%* (863/2,625)
Infections acquired before admission	50% (13/26)	42.5%* (367/863)
Infections acquired during admission	50% (13/26)	55.7%* (481/863)
Second-line assessments completed	3.9%	2.6%
Areas of concern and adverse events	5%	8%

ASA: American Society of Anesthesiologists; DVT: deep vein thrombosis; ACTASM: Australian Capital Territory Audit of Surgical Mortality; ANZASM: Australian and New Zealand Audits of Surgical Mortality.  
 Note: data only includes cases closed at the census date  
<sup>^</sup>Audit patients who underwent an episode of surgery either during their first admission, or within 30 days prior to death.  
 \*Excludes New South Wales data



# 1. ACTASM RECOMMENDATIONS

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These ACTASM recommendations were developed following analysis of data collected through the audit. Although these recommendations were developed for the ACT, they strongly reflect the issues arising around the country, as seen through the Australian and New Zealand Audit of Surgical Mortality (ANZASM). The recommendations also link strongly with the National Safety and Quality Health Service (NSQHS) Standards, which were developed by the Australian Commission on Safety and Quality in Health Care as the basis for hospital accreditation in Australia.

## **Recommendation 1:**

Stringent infection control care should be considered with surgical patients. This group is identified as high risk, especially patients with certain comorbidities.

*Links with NSQHS Standard 3: Preventing and Controlling Healthcare Associated Infection*

## **Recommendation 2:**

Through ongoing education, promoted by audit staff and the ACT Department of Health, increase clinical skills in recognising the deteriorating patient and their appropriate management.

*Links with NSQHS Standard 9: Recognising and Responding to Clinical Deterioration in Acute Health Care*

## **Recommendation 3:**

For terminal care patients the treating team should work collaboratively with the family, from the earliest appropriate opportunity, to develop a palliative treatment plan that is in the patient's best interests. This may mean not operating in patients for whom there is little hope of meaningful survival.

*Links with NSQHS Standard 2: Partnering with Consumers*

## 2. AIMS FOR 2017

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1. Increase utilisation of Fellows Interface from 65% in 2016 to 100% by late 2017-early 2018. This will assist with the elimination of transcription errors, decrease data entry time and improve the process and completeness of data.
2. Distribute the 1st national Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) Case Note Review Booklet in September 2017.
3. Continue to manage and develop feedback processes for audit findings. This includes the provision of a seminar, one regional case note review booklet and customised feedback to hospitals in the form of clinical governance and hospital performance reports.
4. Decrease the median return time for surgical case forms from above 60 days in 2016 to below 30 days by the end of 2017. Timely completion of cases through the online Fellows Interface will improve audit reliability, as well as ensure that case data is captured in the appropriate reporting period.

## 3. PERFORMANCE REVIEW

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This section reviews progress relating to each of the aims in the 2015 ACTASM Report.

1. Increase utilisation of the Fellows Interface to eliminate potential transcription errors, decrease data entry time and improve data completeness. This will be achieved through:

- Upgrades to the ANZASM database and reporting system, to be rolled out over the course of 2016 and 2017. Once these upgrades are implemented, ACTASM will continue to work towards 100% utilisation of Fellows Interface.

Communication with ACT Fellows regarding the move to 100% use of the Fellows Interface will commence in the latter part of 2017, with information in regional newsletters as well as the provision of individual notifications.

2. Contribute to the next Anaesthetic Triennial Report 2015-2017.

- ACTASM has been supplying data on cases in which anaesthesia appeared to play a major role in the death of a patient to the ACT Anaesthetic Death Review Committee. These cases have often already been identified by the anaesthetic group.

### Progress:

- To aid robust data collection, for the Anaesthetic Triennial Report, anaesthetic audit forms are in the process of being revised and updated nationally.

3. Review cases identified as 'excluded for terminal care' to ensure they meet exclusion criteria.

- A small sample of all terminal care cases reported to ACTASM in 2015 underwent clinical review along with their associated medical case notes.

### Progress:

- The outcome of the clinical review confirmed that cases were indeed terminal care and no surgery was performed on the patient.

## 4. BACKGROUND

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The ACTASM is the ACT regional component of the ANZASM, a nation-wide, independent peer-review audit that seeks to identify deficiencies of care leading to surgical mortality. It identifies system or process errors and trends in deficiencies of care, and helps develop strategies to reduce deaths in the surgical arena, both locally and across Australia. The process involves self-reporting by surgeons and peer review by first- and second-line assessors.

The ACTASM is managed by the RACS, with funding and support provided by ACT Health. The ACTASM Management Committee meets quarterly and oversees the project. The project has been gazetted as a Quality Assurance activity under the Commonwealth Qualified Privilege Scheme under Part VC of the Health Insurance Act 1973 (gazetted 25 July 2016). This was updated in 2013 to include Australian and New Zealand College of Anaesthetists (ANZCA) Fellows.

Participation in the ANZASM is a mandatory component of the RACS's Continuing Professional Development Program. Participating surgeons and assessors gain points under category one: clinical governance and evaluation of patient care.

## 5. AUDIT PROCESS

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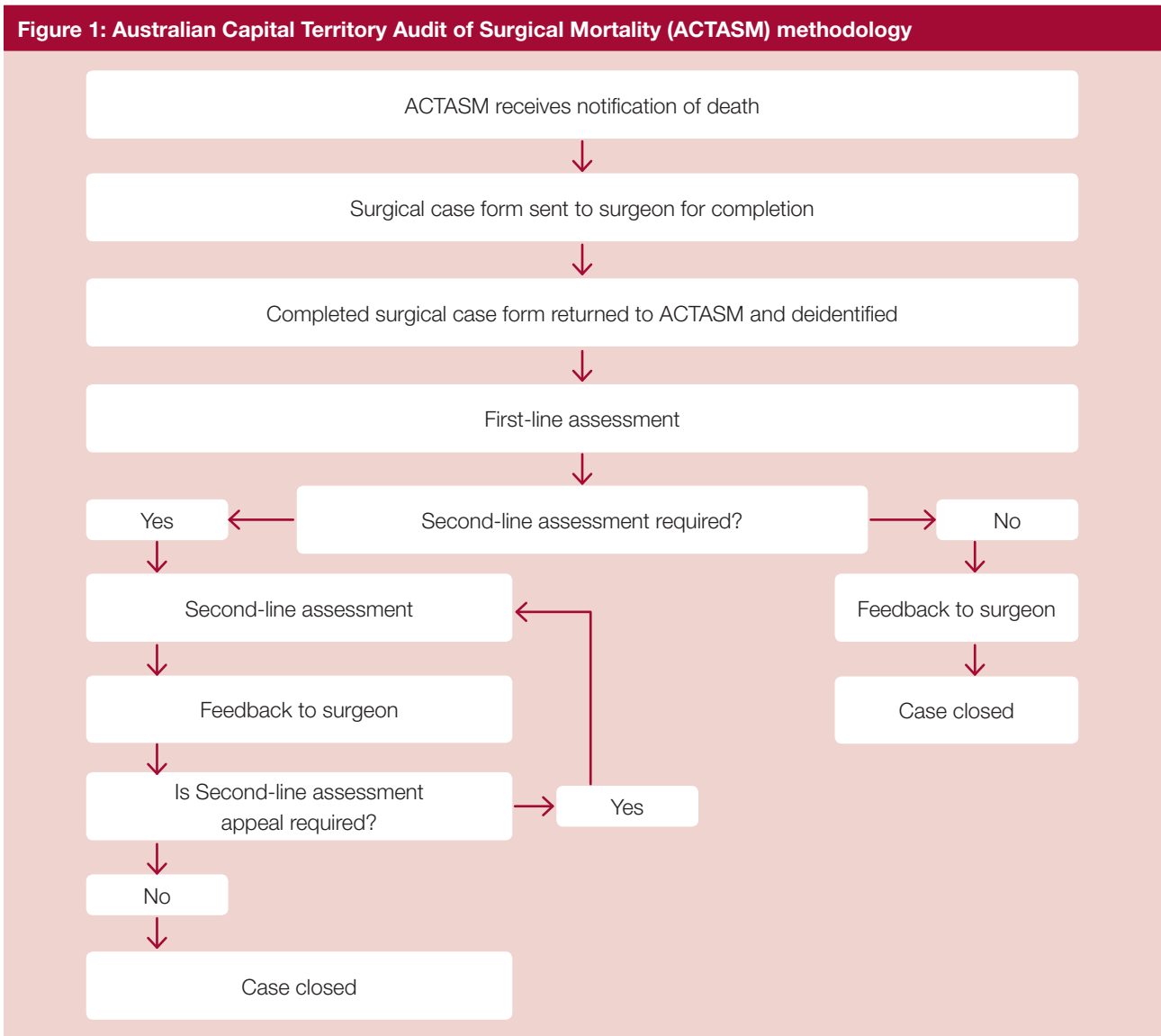
The ACTASM audits patient deaths that occur in public and private hospitals during an episode of surgical care, whether or not the patient underwent a surgical procedure. This can include cases in which a surgeon was involved in the management of a patient admitted by another team, or cases transferred to the surgeon's care during the admission. When no information was provided for a question in an audit form, this has been marked in the report and case excluded from denominator in analysis. This report covers the period 1 January 2016 to 31 December 2016, with a census date of 30 June 2017.

The audit process is outlined below:

1. The ACTASM is notified of a death by the medical records department of a participating hospital.
2. A surgical case form is sent to the consultant surgeon for completion. This provides an opportunity for self-reflection on the case.
3. The completed surgical case form is de-identified and sent to a different surgeon of the same specialty for peer review. This is referred to as first-line assessment. The first-line assessor may find no clinical incidents, or may find clinical incidents that do not need further assessment, and can choose to close the case at this stage. If they are unable to come to a decision based on the information available, the case is then referred for a case note review. This is referred to as second-line assessment.
4. All ACT second-line assessments are sent interstate to ensure objectivity. The second-line assessor reviews the case notes, identifies any clinical incidents, and provides feedback for the surgeon. Incidents are rated in relation to seriousness, preventability and outcome (see section 6 for full explanation). The case notes and feedback are returned to the ACTASM.
5. Once the assessment is complete and any clinical issues have been identified, the case is coded for territory and national reporting, and individualised feedback is provided to the surgeon.
6. The audit is intended to be educational not punitive. At all times the surgeon has the right of reply. Any feedback received is reviewed by the clinical director and, where appropriate, a surgeon may appeal the outcome of the assessment and an additional second-line assessment may be performed.

The process is represented schematically in Figure 1.

**Figure 1: Australian Capital Territory Audit of Surgical Mortality (ACTASM) methodology**



## 6. ASSESSMENT RATING CRITERIA

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Surgeons and assessors are asked to review the case and determine whether there were any clinical incidents where care could have been improved. These are then classified in relation to whether the death was a direct result of the disease process alone, or if aspects of management of the patient might have contributed to that outcome. If there was a perception that the clinical management may have contributed to death, the clinical incidents were reported against the following criteria.

- **Area for consideration:** the assessor believed an area of care could have been improved or different, but recognises that there may be debate about this.
- **Area of concern:** the assessor believed that an area of care should have been better.
- **Adverse event:** an unintended injury or event is caused by medical management rather than by the disease process. The injury or event is sufficiently serious to lead to prolonged hospitalisation; temporary or permanent impairment or disability of the patient at the time of discharge; or contribute to or cause death.

Once the clinical incidents have been classified the clinician is asked to give their opinion on the following.

- Was the incident preventable, under the categories:
  - definitely
  - probably
  - probably not
  - definitely not.

In this report the categories 'definitely' and 'probably' are considered preventable.

- Who the incident was associated with, categorising this information as:
  - audited surgical team
  - another clinical team
  - hospital
  - other.
- The impact of the incident on the outcome, that is, whether the event:
  - made no difference to the outcome
  - may have contributed to death
  - caused the death of a patient who would otherwise have been expected to survive.

## 7. FEEDBACK

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The ACTASM provides feedback in a variety of ways, as outlined below.

- Surgeons receive written feedback from first- and second-line assessors (de-identified) on their ACTASM cases.
- Clinical governance reports are provided annually to hospitals with more than five cases reported for that period. These reports indicate the number of cases received and reviewed, and specific clinical management issues relevant to that hospital. To further improve feedback processes, hospital performance reports will accompany clinical governance reports for 2017. Hospital performance reports will allow system performance to be compared to national performance averages.
- Feedback seminars are now held in all regional areas. In 2016, ACTASM collaborated with the ACT Regional Office to participate in the Annual Scientific Meeting 'Using audit and evidence to improve practice'. The seminar brought together a range of healthcare experts to explore how research and audit can be used to improve practice, and to provide an update on the latest innovations in surgical techniques.
- The free ANZASM App is available from the Apple Store and Google Play and includes information on selected published cases from the case note review booklets around Australia. It was upgraded in 2015 to include information about future events, such as seminars, as well as a video library of previous events.
- All ANZASM regional seminars will now be recorded as webinars, broadening the accessibility of these events for Fellows, clinical staff and other health professionals. The webinars will also be available via the ANZASM App.
- Annual local and national reports are available to the surgical community on the ACTASM website at [www.surgeons.org/actasm](http://www.surgeons.org/actasm).
- Local and national case note review booklets are provided to all Fellows within the ACT, and are available on the ACTASM website at [www.surgeons.org/actasm](http://www.surgeons.org/actasm).
- The ACTASM has contributed de-identified data for publication in national and international journals. Publications include a 4-year retrospective analysis published in 2016, which demonstrated a 15.4% reduction in perioperative mortality rates following the introduction of the audits. <sup>(2)</sup>
- One of the most positive aspects of the audit is that it provides the opportunity for surgeon self-reflection and review. In cases in which the registrars provided the majority of care, the surgeon can review the case themselves, or delegate the completion of the form to the registrar before reviewing the form together prior to submission. When asked in the surgical case form, 5.8% (4/69; no information provided for 4 cases) of surgeons reflected that they could consider changing some aspect of the patient's care. The insights generated by this process will inform and improve future patient care.

## 8. AUDIT PARTICIPATION

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All public and private hospitals in the ACT participate in ACTASM. In the period 1 January 2016 to 31 December 2016 there were three hospitals that reported deaths. The other participating hospitals had no notifications during the audit period.

Participation in ACTASM by consultant surgeons in the ACT is at 96.5% (83/86). There were 70.9% (61/86) of surgeons also participating as assessors.

There were 47.1% (16/34) of ACT RANZCOG Fellows participating in ACTASM. Of the participating Fellows, 68.8% (11/16) also acted as assessors. Participation is not mandatory for RANZCOG Fellows.

Participation by ANZCA Fellows is 37.2% (29/78). Of those participating 82.8% (24/29) of Fellows also acted as assessors. Participation is not mandatory for ANZCA Fellows. Cases identified in the surgical case form as potentially having an anaesthetic component to the death are reviewed separately as part of the anaesthetic audit process. The data collected from ANZCA Fellows goes towards the Anaesthetic Triennial Report and this data is not included in this report.

## 9. ACTIVITY

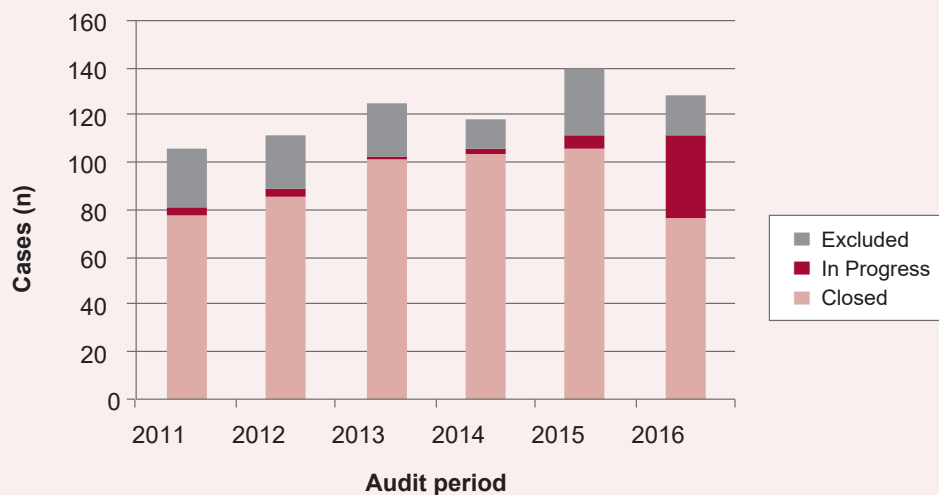
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This report covers the period 1 January 2016 to 31 December 2016, with a census date of 30 June 2017. During that period 128 cases were reported to ACTASM from three hospitals. This is an 8.6% decrease from 2015. The ACTASM case status is shown in Figure 2. Of the 128 cases:

- 59.4% (76/128) of cases completed the full audit process and were closed prior to the census date. These are the cases that form the basis of the analyses in this report.
- 28.1% (36/128) of cases were still in progress at the census date. This is an increase from 2015, in which 16.4% (23/140) of cases were still in progress as at the census date. There seems to have been an increase in the untimely return of cases and assessments. The timely completion of case and assessment forms improves the validity of the audit process by ensuring that data is recorded in the correct reporting period.
- 12.5% (16/128) of cases were excluded. Cases are excluded if the patient was admitted for terminal care, was inappropriately attributed to surgery or the case was lost to follow-up. This is a decrease in the number of excluded cases from 2015, in which the exclusion rate was 21.7% (23/106). This also means that ACTASM is in line with the national exclusion rate of 11.7% (613/5,222).

In 2016, 3.9% (3/76) of cases were sent for second-line assessment and completed during the audit period. This is a decrease on the previous year, with 14.2% (15/106) of cases undergoing second-line assessment in 2015. The national average for second-line assessments completed in 2016 is 2.6%. Due to the high number of cases still in progress at the census date, and as second-line assessments have an extended audit process, it is likely that those cases sent for second-line assessment were still in progress at the census date and were therefore not included in this report.

Figure 2: Audit status at census date per year (n=729)



## 10. PATIENT PROFILE

Of the 76 patients whose case had completed the audit process:

- 55.3% (42/76) were male, with an average age of 67 years (range, 10-99).
- 44.7% (34/76) were female, with an average age of 77 years (range, 31-94).

Risk status:

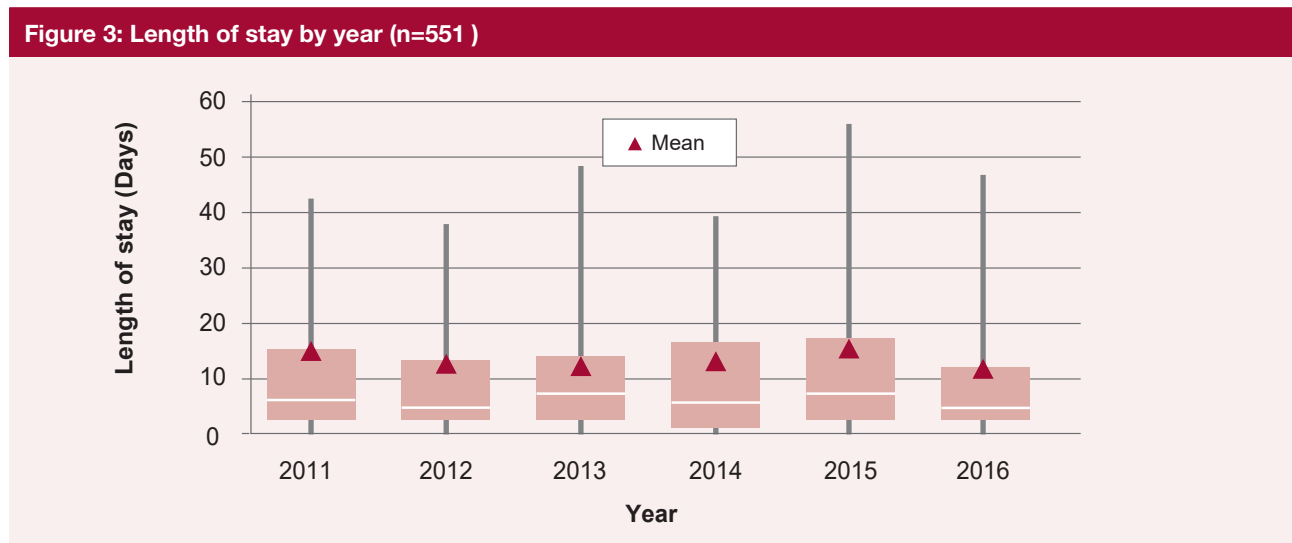
- 85.5% (65/76) of patients had at least one comorbidity, with 44.7% (34/76) having three or more.
- 56.3% (36/64; no information provided for 12 cases) of patients had an American Society of Anesthesiologists (ASA) grade of 4 or higher, indicating the presence of severe systemic disease.
- Assessors considered the patient's risk of death prior to any surgery to be considerable or expected in 64.3% (36/56) of cases. Note: this analysis only includes patients who had surgery.



# 11. HOSPITAL CARE

Figure 3 is a box-and-whisker plot in which:

- the central box represents the values from the lower to upper quartile (25th to 75th percentiles)
- the middle line represents the median value
- the vertical line extends from the minimum value to the maximum value, excluding extreme values.



Note: excludes extreme values

## 11.1 Hospital Admission

In terms of hospital admissions:

- 98.7% (74/75; no information provided for 1 case) of patients were admitted into a public hospital.
- 94.4% (67/71; no information provided for 5 cases) were admitted as public patients.
- 88.2% (67/76) of patients were admitted as emergencies.

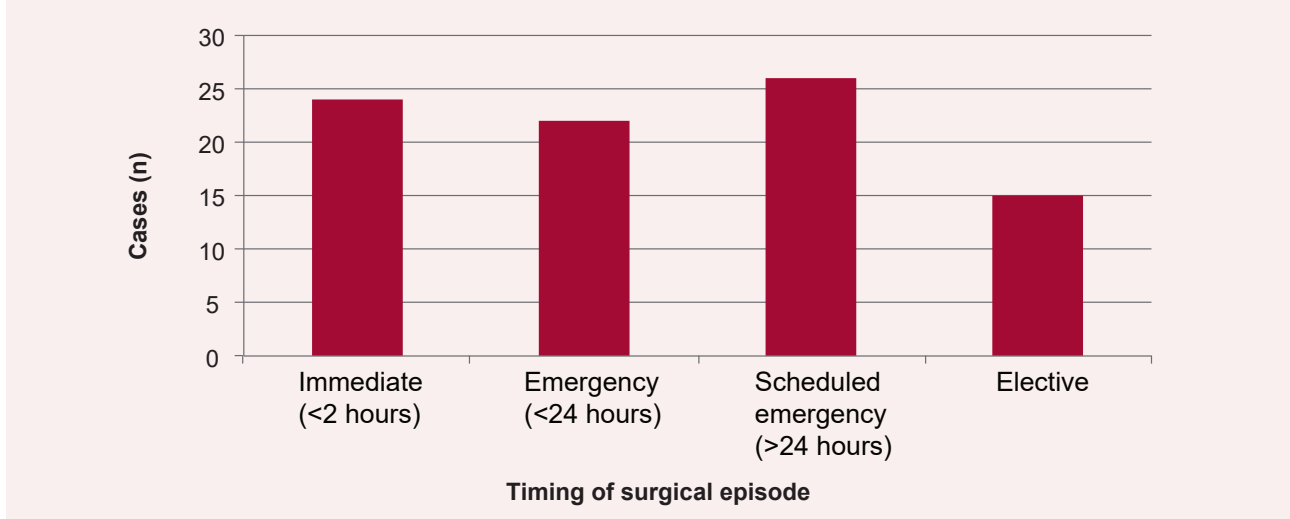
The average length of stay was 10 days, with a median of 4 days (see Figure 3).

## 11.2 Operations

An overview of patients who underwent an operation is provided below.

- 73.7% (56/76) of patients had at least one operation. A total of 90 operations were performed.
- 26.8% (15/56) of patients who underwent an operation had more than one operation. The highest number of operations performed on an individual patient was 8.
- As shown in Figure 4, surgeons indicated that timing of surgical episodes were scheduled emergency 29.9% (26/87; no information provided for 3 of the operations), immediate 27.6% (24/87), emergency 25.3% (22/87) and elective 17.2% (15/87).

**Figure 4: Urgency classification of operation (n=90 operations in 56 cases)**



The consultant completing the surgical case form was asked to record the seniority of the surgeon who made the clinical decision to operate, as well as the seniority of the surgeon who performed the surgery.

- Consultants operated in 53.6% (30/56) of initial operations and 50.0% (17/34) of second and subsequent operations. There has been a considerable decline in consultants operating in subsequent procedures, with 75% (36/48) of subsequent operations performed by consultants in 2015.
- For each surgical episode there may have been more than one grade of surgeon operating. In this reporting period, Consultants operated in 52.2% (47/90) of operations, Fellows operated in 22.2% (20/90) of operations; Surgical Education and Training Trainees operated in 22.2% (20/90) of operations; and registrars operated in 5.6% (5/90) of operations.

Issues:

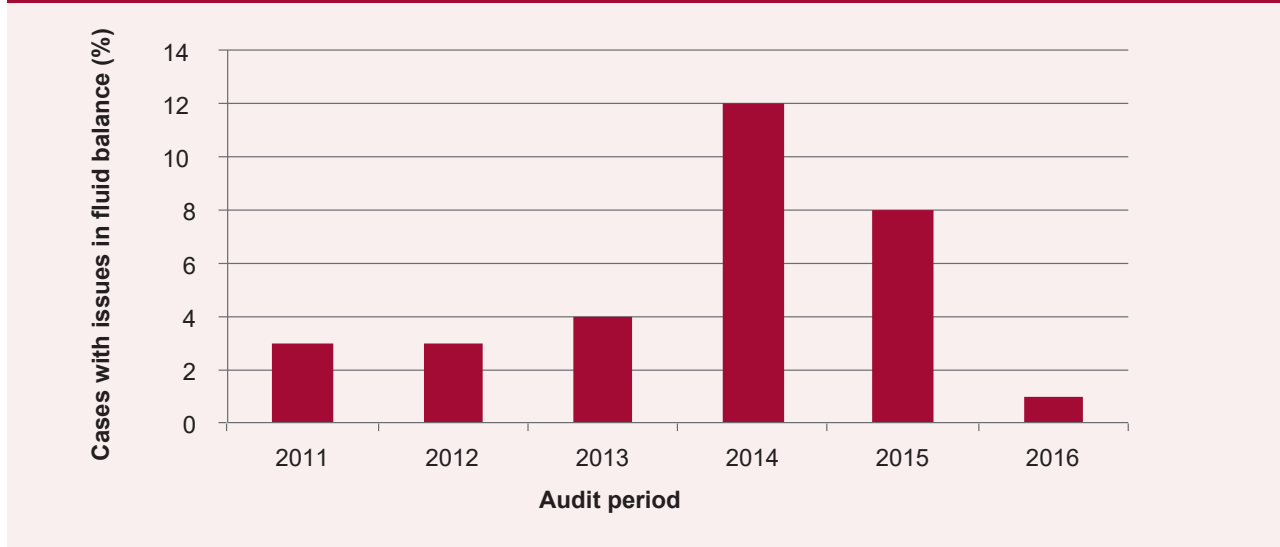
- There was an unplanned return to theatre in 12.5% (7/56) of cases.
- The operation was abandoned due to finding a terminal situation in 7.3% (6/82; no information provided for 8 operations) of operations.
- No cases were identified by the surgeons as probably or possibility having an anaesthetic component to the patient's death (0/55; no information provided for 1 case). Since February 2014, all cases in which the surgeon identifies an anaesthetic component are sent for an anaesthetic review.

### 11.3 Risk Management

The treating surgeon was asked to record whether deep vein thrombosis (DVT) prophylaxis was given. They were also asked to indicate whether the patient received critical care support in an intensive care unit or high dependency unit before or after surgery.

- 84.7% (61/72; no information provided for 4 cases) of patients received some form of DVT prophylaxis. Of the 11 cases involving patients who did not receive DVT prophylaxis, surgeons indicated that providing it was not appropriate in 72.7% (8/11) of cases. In the remaining 27.3% (3/11) of cases it was an active decision to withhold.
- 72.4% (55/76) of patients were treated in a critical care unit, the same percentage as in 2015.
- Of the cases in which the patient did not receive care in either an intensive care unit or high dependency unit, assessors did not identify any cases in which the patient would have benefitted from receiving such care (0/21).
- Surgeons considered fluid balance to have been an issue in 1.3% (1/76) of cases. While some cases are still to be finalised, this is the lowest rate of fluid balance issues recorded for the ACT to date (see Figure 5).

**Figure 5: Trends in issues with fluid balance (n=551)**



### 11.4 Interhospital Transfers

The treating surgeon was asked to record any issues associated with the transfer of a patient between hospitals:

- 45.2% (33/73; no information provided for 3 cases) of patients were transferred during their admission.
- Surgeons indicated that in 12.1% (4/33) of cases there was a delay in transfer.

## 12. OUTCOMES

### 12.1 Infections

In 2012 the ANZASM started collecting data on infection in patients undergoing surgery. The ANZASM and the ACTASM are keen to monitor trends in infection, primarily to ensure that strategies are implemented to prevent and minimise infections contracted both prior to and during surgery. In the ACT:

- 34.2% (26/76) of patients died with a clinically significant infection. Clinically significant infections remain an ongoing issue, with 35.2% (37/105; no information provided for 1 case) of patients in 2015, and 35.3% (36/102; no information provided for 2 cases) of patients in 2014, also being reported as having a clinically significant infection. In 2016, the national average for clinically significant infections was 32.9% (863/2,625), indicating that this is not an issue confined to the ACT.
- For the patients with a clinically significant infection, 50.0% (13/26) acquired the infection before admission while 50.0% (13/26) acquired the infection during admission. Patients who acquired an infection during their admission had a mean age of 72 years, 1 year older than the overall mean age (71 years).
- Surgeons indicated that the types of infection were intra-abdominal sepsis (30.8%; 8/26), pneumonia (23.1%; 6/26), septicaemia (23.1%; 6/26) and another source (23.1%; 6/26).
- In cases in which there was a clinically significant infection, surgeons considered the antibiotic regime to be appropriate in 92.0% (23/25; no information provided for 1 case) of cases.
- The average length of stay for patients with infections was 19 days, compared with 10 days for all patients.

## 12.2 Complications

The treating surgeon was asked to record any complications that occurred following a surgical procedure.

- Complications occurred in 23.2% (13/56) of cases. A total of 16 complications were recorded for the 13 cases with complications.
- Of the 16 identified complications, procedure-related sepsis and anastomotic leaks were the most commonly reported, at 25.0% (4/16) and 18.8% (3/16) respectively.

## 12.3 Causes of Death

The cause of death recorded by the treating surgeon is based on the clinical course of the patient and any relevant supporting evidence from investigations. Where doubt exists around the circumstances leading to death, the case may be referred to the coroner. In other instances, where the cause of death is not clear, a postmortem examination may be requested.

- 95 causes of death were reported in 76 patients, with surgeons reporting a maximum of 3 causes of death per patient.
- The most commonly reported causes were neurological problems\* (26.3%; 25/95), acute respiratory/pneumonia (16.8%; 16/95), sepsis (14.7%; 14/95), multiple organ failure (11.6%; 11/95) and cardiac causes (7.4%; 7/95).

\*Neurological problems include diffuse brain injury, head injury, intracerebral haemorrhage, subarachnoid haemorrhage and subdural haematoma.

# 13. CLINICAL MANAGEMENT ISSUES

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A primary objective of the peer-review process is to determine whether death was a direct result of the disease process alone, or if aspects of patient management might have contributed to that outcome.

There are two possible outcomes for the peer-review process. The first is that the death of the patient was a direct outcome of the disease process, with clinical management having no impact on the outcome. The second is a perception that aspects of patient management may have contributed to the death of the patient.

If there was a perception that the clinical management may have contributed to death, the clinical incidents were reported as adverse events, areas of concern or areas of consideration. Refer to section 6 for criteria definitions.

Assessors did not identify any clinical management issues in 86.8% (66/76) of cases. When combined with cases reported to only have areas of consideration (7.9% of cases, 6/76), the total number of cases with no or minor criticism was 94.7% (72/76).

The identification by an assessor of an area of concern or adverse event denotes a greater degree of criticism of clinical management. In this report, an area of concern or adverse event occurred in 5.3% (4/76) of cases. This is below the 7.9% (268/3,373) of cases reporting adverse events or areas of concern nationally in 2016.

Cases can be identified to have one or more clinical management issues. Clinical management issues were reported in 13.2% (10/76) of cases. A total of 13 clinical management issues were identified, with up to 3 issues reported for 1 case. Clinical management issues have decreased from 26.4% (28/106) of cases identified as having clinical management issues in 2015. As some cases are still under review at the census date, this could in part explain the 2015-2016 discrepancy.

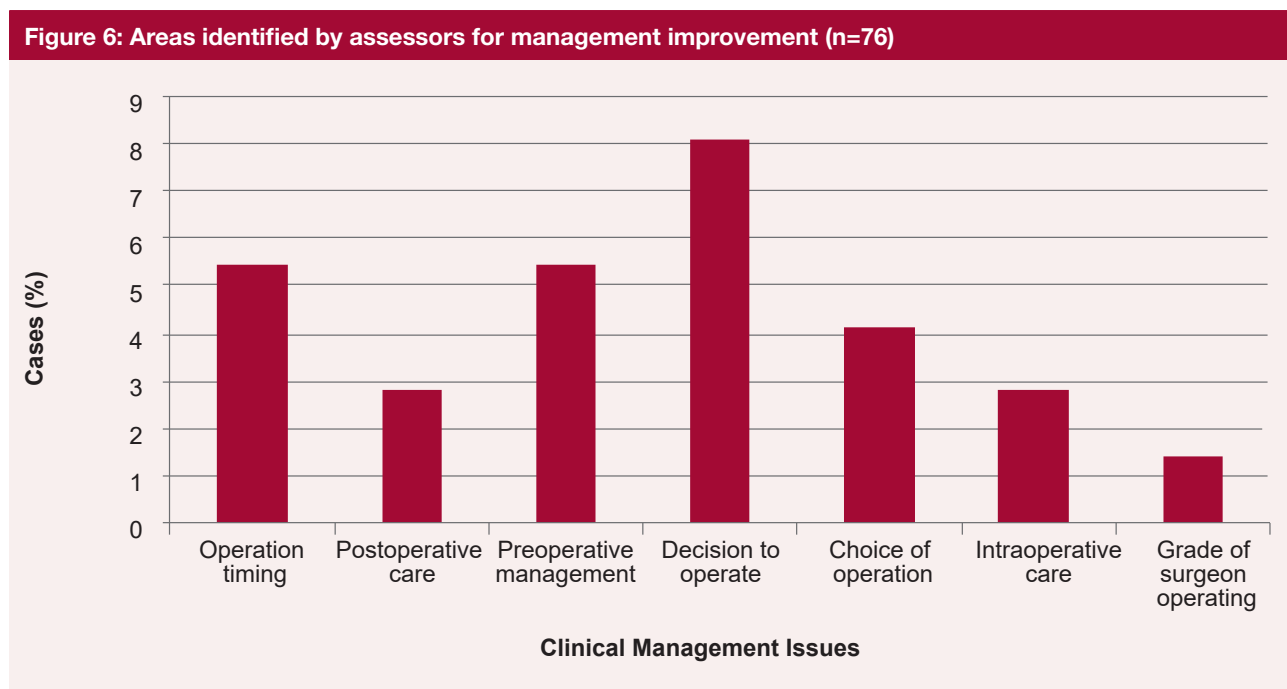
In terms of preventability and attribution:

- 0% (0/13) of issues were considered definitely preventable, while 15.4% (2/13) were considered probably preventable.

- 46.2% (6/13) of issues were associated with the audited surgical team, 15.4% (2/13) with another clinical team, and 0% (0/13) associated with other, such as the underlying disease process.

All surgeons received individual feedback on their cases. System-wide feedback is incorporated in the clinical governance reporting.

As shown in Figure 6, the areas of care most frequently identified by assessors as requiring improvement were decision to operate, 8.1% (6/74; no information provided for 2 cases); operation timing, 5.5% (4/73; no information provided for 3 cases); and preoperative management, 5.5% (4/73; no information provided for 3 cases). Overall, the assessors were happy with the grade of surgeon operating; there was only 1 case in which the assessor indicated that there could have been an improvement in this area (1.4%; 1/72; no information provided for 4 cases).



## 14. FINAL SUMMARY

This is the 6th full year of reporting for the ACTASM, and the project is now well embedded in the ACT. As the audit progresses in the ACT over the years, emerging trends across the territory can be identified. The feedback provided through these reports, as well as through the hospital governance reports, can help drive system improvements, potentially leading to better outcomes for all surgical patients. Longevity of the audit process has been shown to correlate with a reduction in surgical deaths, with the Western Australian Audit of Surgical Mortality demonstrating a 30% reduction in surgical deaths over a 10 year audit period.<sup>(3)</sup> As part of the effort to improve feedback to stakeholders, 2017 will see the introduction of hospital performance reports. These reports can be used, in conjunction with the clinical governance reports, to compare hospital performance against others in the area, as well as against national averages, on clinical management issues.

The use of interstate assessors in the ACT safeguards the independent peer-review process and ensures that second-line cases remain de-identified. This is of particular importance where there are very small numbers of surgeons in a particular specialty or subspecialty.

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A/Professor Wendy Babidge	Director, RAAS
Mr Gordon Guy	ANZASM Manager
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Ms Ursula Hendricks, Ms Anje Scarfe and Dr Tamsin Garrod	RAAS editorial review team

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## 16. REFERENCES

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A photograph of three surgeons in an operating room. They are wearing blue scrubs, white surgical masks, and hairnets. One surgeon in the foreground is wearing a yellow mask and a white hairnet. Another surgeon to the right is wearing a blue hairnet and a yellow mask. A third surgeon is partially visible on the left. They are all focused on a patient who is lying on the operating table. A large surgical light fixture is visible above them, casting a bright light. The background shows the sterile environment of the operating room with various medical equipment and a door.

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The information contained in this report has been prepared under the auspices of the Royal Australasian College of Surgeons, Australian Capital Territory Audit of Surgical Mortality Management Committee, which is a declared quality assurance committee under the *Health Act 1997*.

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