

2014 ANNUAL REPORT



**SAAPM**  
South Australian Audit  
of Perioperative Mortality

13



# SOUTH AUSTRALIAN AUDIT OF PERIOPERATIVE MORTALITY

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The information contained in this annual report has been prepared by the Royal Australasian College of Surgeons, South Australian Audit of Perioperative Mortality Management Committee.

The South Australian Audit of Perioperative Mortality is a confidential project with legislative protection at a state level by the Health Care Act 2008 under Part 7 (Quality improvement and research) (gazetted 23 June 2011 and 12 June 2014).

The Australian and New Zealand Audit of Surgical Mortality (ANZASM), including the South Australian Audit of Perioperative Mortality, also has protection under the Commonwealth Qualified Privilege Scheme under Part VC of the Health Insurance Act 1973 (gazetted 23 August 2011).

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# Chairman's Report

This is the 9th Annual Report issued by the South Australian Audit of Perioperative Mortality (SAAPM). The report has been revised to highlight key findings in important areas such as clinical management issues. We have several pieces of good news this year. I am pleased to report some positive comments from the SAAPM evaluation survey that was sent to all South Australian (SA) surgeons in 2014. We achieved a 56% response rate. Of the respondents, 93% reported that they read the case note review booklets, and 98% of readers thought they were valuable. Comments included:



- It gives us an insight into situations which we may be similarly involved in... and makes us more prepared.*
- It's useful to see how problems evolve and where early intervention can prevent major complications.*
- Review of these cases provides useful insight into the thinking process that may be associated with a poor outcome.*



There were also positive comments regarding the individual surgeon reports and the feedback letters from the assessors.

A recurrent issue that I have reported on in previous years has been the lack of 100% completion of surgical case forms (SCFs). The SAAPM team has tried to persuade, remind and even cajole surgeons into completing the forms. This seems to be working as the percentage of SCFs completed has risen from 87% in the 2012/13 year to 93% in the 2013/14 year as of the date of this report.

At present we are second in the completion stakes, behind the Tasmanian Audit of Surgical Mortality (TASM), which has had 100% completion for several years. I hope that we are heading in that direction; after all, it only takes a few minutes of the surgeon's time. Some surgeons do not seem to realise the seriousness of non-compliance.

The Medical Board of Australia has indicated that from 2014 they will audit 15% of practitioners regarding Continuing Professional Development (CPD) compliance.

Involvement in the SAAPM is a requirement for all operating surgeons – otherwise the RACS cannot issue a CPD certificate. The CPD department has been active in 2014 in checking compliance with the CPD requirements.

Hospital involvement remains strong, with all South Australian hospitals that perform surgery being involved. In general, the medical record departments are very helpful in providing the notifications of deaths and copies of the case notes if a second-line assessment (SLA) is needed.

SA Health is also very helpful in assisting us in achieving the goals of the Audit and in providing advice and other data as needed.

Last year I referred to data that suggested a decrease in the number of deaths occurring in the perioperative period. This trend has been noted in Western Australia in a recent report from the Western Australian Audit of Surgical Mortality (WAASM).

Consistent with this trend, the SAAPM recorded a decrease in the number of notifications of death in 2013/14, from 638 in the previous audit period to 616.

Please read this report and note the lessons. I encourage all surgeons to fully complete the SCFs that are generated from their activities. I also thank the many first- and second-line assessors who have helped us in 2013-14.

I acknowledge the dedicated work by Sasha Stewart as Project Manager and Kimberley Cottell as Project Officer.

**Glenn McCulloch FRACS  
SAAPM Clinical Director  
and Chairman**

2012/13 Surgical Case Forms completed

87%

2013/14 Surgical Case Forms completed

93%

2014/15 Let's aim here for next year

100%

## Recommendations

### Improving the audit:

- Increase the rate of return of SCFs from the current rate of 93%. This is likely to be facilitated in part by the recent introduction of direct electronic linkage between the SAAPM database and the RACS CPD online system, resulting in increased monitoring of compliance.
- Introduce mandatory electronic submissions of forms (SCFs and first-line assessment (FLA) forms) by the end of 2015.
- Continue to develop and improve clinical governance reports for hospitals based on consultation with stakeholders.
- Increase the focus on targeted (specialty- and procedure-specific) information in publications and communications.

### Hospitals / health departments:

- Obesity itself is a complicating factor in surgical procedures performed on morbidly obese patients. Consideration should be given to providing morbidly obese patients with preoperative weight loss support services in public hospitals and in the community through general practitioner health management plans.
- Increase education and awareness in medical units of the risk of acute abdomen.
- Increase education and awareness in emergency departments of the clinical presentation of ruptured aortic aneurysms.
- Increase education and awareness in medical units of the clinical features of necrotising fasciitis and Fournier gangrene.

## 1. Background

**The SAAPM is an external, independent, peer-reviewed audit of the process of care associated with surgically-related deaths in South Australia. The SAAPM commenced data collection on 1 July 2005 and is funded by SA Health.**

The SAAPM project falls under the governance of the Australian and New Zealand Audit of Surgical Mortality Steering Committee and has protection at a state level under the Health Care Act 2008 (Part 7: Quality improvement and research) (gazetted 12 June 2014), in addition to federal coverage under the Australian and New Zealand Audit of Surgical Mortality (ANZASM) through the Commonwealth Qualified Privilege Scheme, Part VC of the Health Insurance Act 1973 (gazetted 23 August 2011).

## 2. Audit process & conventions

The SAAPM is notified of deaths in all participating hospitals where a surgeon was involved in the care of the patient. The SAAPM team provides either a paper-based or electronic surgical case form (SCF) to the surgeon for completion to obtain the full clinical picture. Surgeons are asked to report against the following criteria:

- **area of consideration:** where care could have been improved or different, but may be an area of debate;
- **area of concern:** where care should have been better managed;
- **adverse event:** an unintended injury, caused by medical management rather than by disease, which is sufficiently serious to lead to prolonged hospitalisation or to temporary or permanent impairment or disability of the patient, which contributes to, or causes, death.

The completed SCF is de-identified and reviewed by another consultant surgeon from the same specialty; this process is referred to as first-line assessment (FLA). The assessor completes an FLA form, providing comments on the case management and level of care provided to the patient. If the first-line assessor considers that there is insufficient information on the SCF to come to a conclusion, or if there are factors that warrant further investigation, a second-line assessment (SLA) is recommended. The SAAPM team provides the surgeon involved with feedback from the assessor(s).

## 3. Audit participation

Following the recent recruitment of the last remaining non-participating hospital, all eligible hospitals in South Australia (54) now participate in the audit<sup>1</sup>.

All participating hospitals have provided notifications of surgical deaths for the 2013/14 reporting period. The majority of surgical deaths occur in public hospitals (87%), reflecting the higher number of complex procedures and high-risk patients treated in the public system.

In terms of participation by surgeons, 98% of practising RACS Fellows (366 at the time of reporting) have provided signed consent to participate in the audit (no recorded deaths were associated with any of the six Fellows who have not returned a participation form).

There has been a reduction in the number of deaths reported to the SAAPM in this reporting period. A total of 616 deaths were reported in 2013/14 compared with 638 deaths in 2012/13. To provide some context, according to data obtained from the Australian Institute of Health and Welfare, there were 172,763 separations following a surgical procedure<sup>2</sup> in South Australia in 2012/13<sup>3</sup>. The number of operative deaths reported to the SAAPM in 2012/13 (384<sup>4</sup>) represents 0.2% of the total number of separations following a surgical procedure during that period.

The proportion of SCFs returned to the SAAPM has increased. At the time of writing, 93% of SCFs had been returned for this audit period, an improvement on the return rates reported in both of the previous two periods (87%). A high proportion of SCFs were completed by the consultant (71%), with the remainder completed by a SET Trainee (12%), Fellow (10%), Service Registrar (7%) or International Medical Graduate (1%).

## 4. Assessments

During the reporting period, 1 July 2013 to 30 June 2014, 616 SCFs were sent to surgeons and 93% (570) were returned by the census date. Of the cases returned, 9% (50) were excluded because the patient was admitted for terminal care, 2% (12) cases were still undergoing FLA, and one case required more information relating to the SCF. The remaining 89% (507) cases had a completed FLA and of those, 12 cases (2%) were referred for SLA, identical to the proportion referred for SLA in 2012/13.

## 5. Reporting period

**01.07.2013-  
30.06.2014**

1. This number is lower than the 55 eligible hospitals reported in 2012/13 due to one hospital no longer performing surgical procedures.
2. Australian Refined Diagnosis Related Groups (AR-DRG) codes (versions 5.2, 6.0 and 6.0x) were obtained and assessed with respect to identifying and selecting only operative procedures.
3. Kiermeier, A. (2015). Australian Perioperative Mortality Rates (2009-13). Unpublished Report.
4. 222 of the cases reported to SAAPM were non-operative, i.e. under the care of a surgeon but no surgical procedure performed. At the time of reporting, 32 surgical case forms from 2012/13 had not been returned and operative status was unknown; thus, the number of operative cases is likely to be a slight underestimate.

# 616 SURGICAL DEATHS REPORTED

## 79.2 MEDIAN AGE AT DEATH

### 93% PATIENTS WITH COMORBIDITIES

### 55% WERE MALE

## 6. Patient sample demographics

Of the 616 patients who died, the majority were elderly, had pre-existing health problems and were admitted as emergencies for acute life-threatening conditions. Emergency admissions accounted for 87% of all cases, the balance being made up of elective admissions (**FIGURE 1**). This was similar to 2012/13 in which 89% of admissions were emergency and 11% were elective (**FIGURE 2**). The median age at death was 79.2 years (interquartile range 69.1 – 86.4) and 55% were male.

Of the cases in which the SCF was returned, 60% of patients had an American Society of Anesthesiologists (ASA) grade of four or higher (ASA four representing a severe systemic disease that is a constant threat to life) while 93% had at least one significant comorbidity that increased the risk of death. The most frequently occurring comorbidities were cardiovascular problems (23%), advanced age (21%) and respiratory disease (12%), and these were reflected in the most common causes of death: cardiac failure and respiratory failure (**FIGURE 3**).

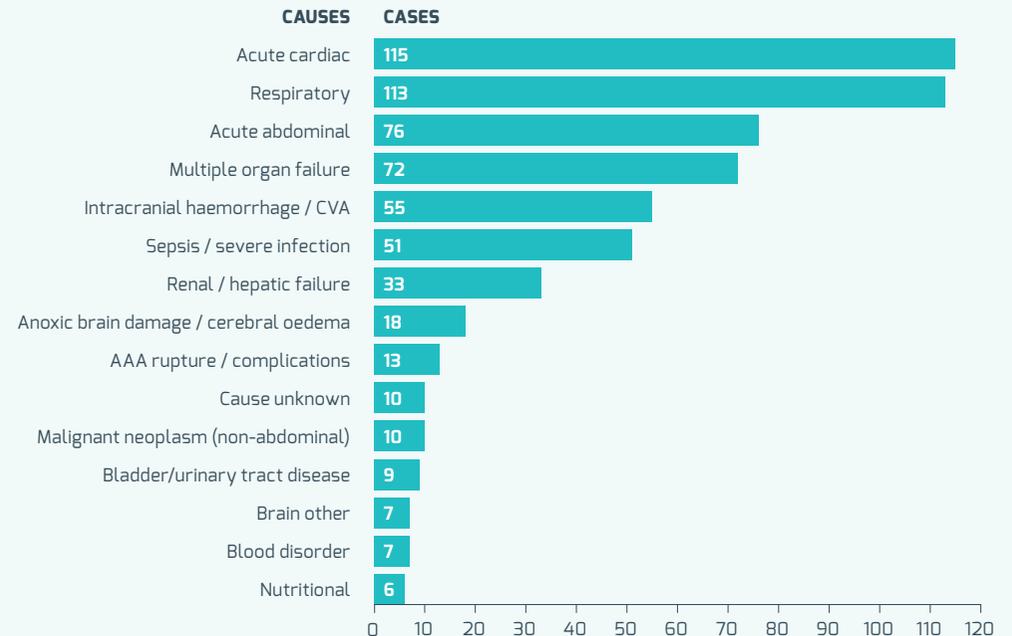
**FIGURE 1:**  
ADMISSION STATUS  
2013/2014



**FIGURE 2:**  
ADMISSION STATUS  
2012/2013



**FIGURE 3:**  
FREQUENCY OF REPORTED CAUSES OF DEATH



**Note:** cause of death included if reported for five or more cases.  
**CVA:** cerebrovascular accident; **AAA:** abdominal aortic aneurysm.

# 28% OF PATIENTS HAD PREOPERATIVE TRANSFERS 16% OF TRANSFERS HAD TRANSFER-RELATED CONCERNS

## 7. Transfers

The treating surgeon reported that preoperative transfer between hospitals occurred in 28% of audited cases. Such transfers were in response to the need for higher levels of care or specific expertise. Concerns were raised about patient care relating to the transfer in 16% of these cases. **FIGURE 4** shows the frequency of each type of transfer issue. The most frequently reported issues relating to transfer were delay in transfer 6% (8) and inappropriate transfer 6% (8). Some cases were associated with more than one transfer issue.

**FIGURE 4:**  
**TRANSFER ISSUES IDENTIFIED BY TREATING SURGEON**



# 70% OF PATIENTS RECEIVED CRITICAL CARE 74% OF PATIENTS RECEIVED DVT PROPHYLAXIS 8% OF PATIENTS HAD FLUID BALANCE ISSUES

## 8. Risk management

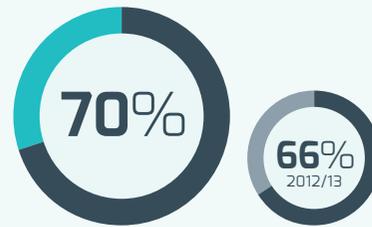
The audit collects data relating to aspects of patient care that are particularly important for high-risk surgical patients: utilisation of, and level of satisfaction with, critical care units; deep vein thrombosis (DVT) prophylaxis; and fluid balance management.

**Utilisation of critical care units:** critical care facilities were utilised in 70% of cases (FIGURE 5). In the cases in which the patient did not receive critical care, the assessors considered that five patients (5%) would have benefited from critical care. (Note: excludes missing data, 50 cases).

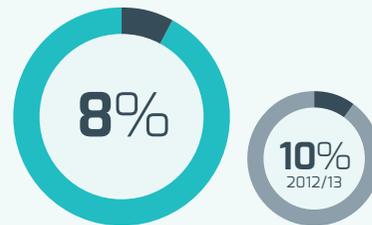
**Fluid balance management:** the treating surgeon reported that fluid balance was an issue in 8% (38) of cases which is slightly lower than the proportion reported in 2012/13 (10%) (FIGURE 6). Fluid balance issues were more common among operative (9%) than non-operative (5%) cases (FIGURES 7 & 8).

**DVT prophylaxis:** surgeons reported that DVT prophylaxis was used in 74% of cases, which was slightly lower than the 76% recorded for the previous reporting period (FIGURE 9). In most of the cases in which DVT prophylaxis was not used there was an active decision to withhold it and/or it was not considered appropriate (98%). In the remaining 2% of cases prophylaxis was not considered. Assessors identified 0.4% of cases (2) where DVT prophylaxis was not used when it should have been, and 1% of cases (6) where its use was considered inappropriate.

**FIGURE 5:  
USE OF CRITICAL CARE UNITS**



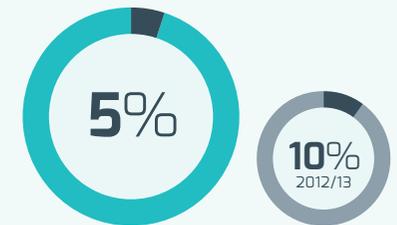
**FIGURE 6:  
FLUID BALANCE ISSUES – ALL CASES**



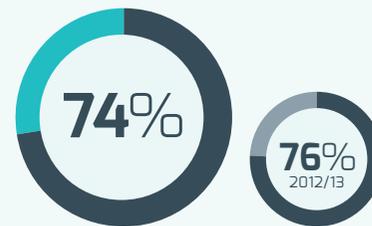
**FIGURE 7:  
FLUID BALANCE ISSUES  
IN OPERATIVE CASES**



**FIGURE 8:  
FLUID BALANCE ISSUES  
IN NON-OPERATIVE CASES**



**FIGURE 9:  
USE OF DVT PROPHYLAXIS**



**541** SURGICAL PROCEDURES FOR **362** PATIENTS  
**102** PATIENTS HAD TWO OR MORE SURGICAL PROCEDURES  
**18%** OF OPERATIVE CASES HAD UNPLANNED RETURN TO THEATRE  
**65%** OF PROCEDURES HAD CONSULTANT OPERATING

## 9. Operative and nonoperative deaths

A surgical procedure was not performed in 30% of audited deaths, and this was an active decision made by the surgeon in 55% of these cases.

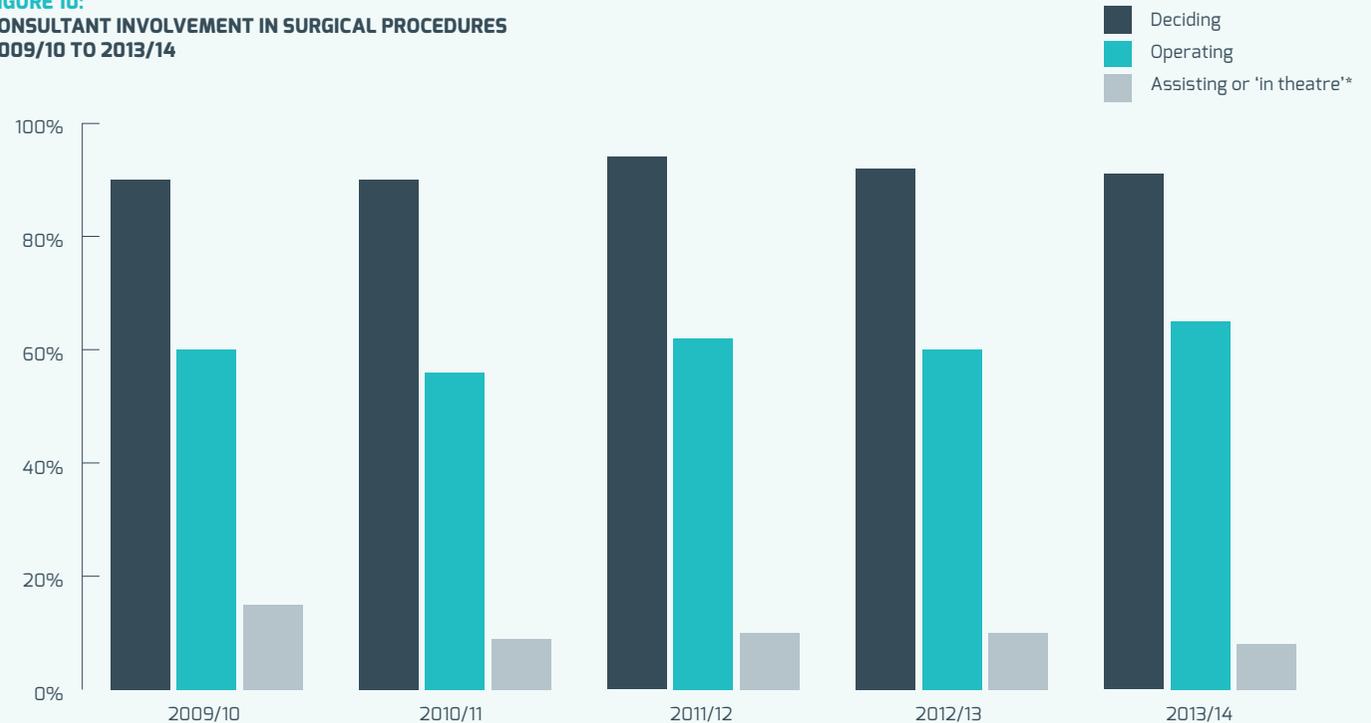
A total of 541 surgical procedures for 362 patients were reported. In 102 (28%) of these cases, the patient underwent two or more surgical procedures. The more surgical procedures performed in each case, the greater the likelihood of an area of concern or an adverse event. In 3% of operative cases the surgical procedure was abandoned because a terminal situation was found, and in 18% of operative cases the surgeon reported an unplanned return to theatre.

A consultant surgeon operated in 65% of the reported procedures (a slight increase since 2012/13) and made the decision to proceed to surgery in 91% (**FIGURE 10**).

When a patient underwent multiple surgical procedures, consultant involvement (operating, assisting or in theatre) was higher for subsequent compared with first surgical procedures. This marks a change from the previous report in which consultant involvement did not vary according to the number of surgical procedures.

Postoperative complications are considered to be a major source of mortality in surgical patients. In 2013/14 36% of operative patients had a postoperative complication, comprising 149 complications among 130 patients. The most frequently occurring postoperative complications were respiratory complications, tissue ischaemia and postoperative bleeding.

**FIGURE 10:**  
CONSULTANT INVOLVEMENT IN SURGICAL PROCEDURES  
2009/10 TO 2013/14



\*Note: 'in theatre' indicates that the consultant was present in the theatre but was not operating.

## 5% OF CASES HAD PREOPERATIVE DELAYS IN DIAGNOSIS OF THESE DELAYS:

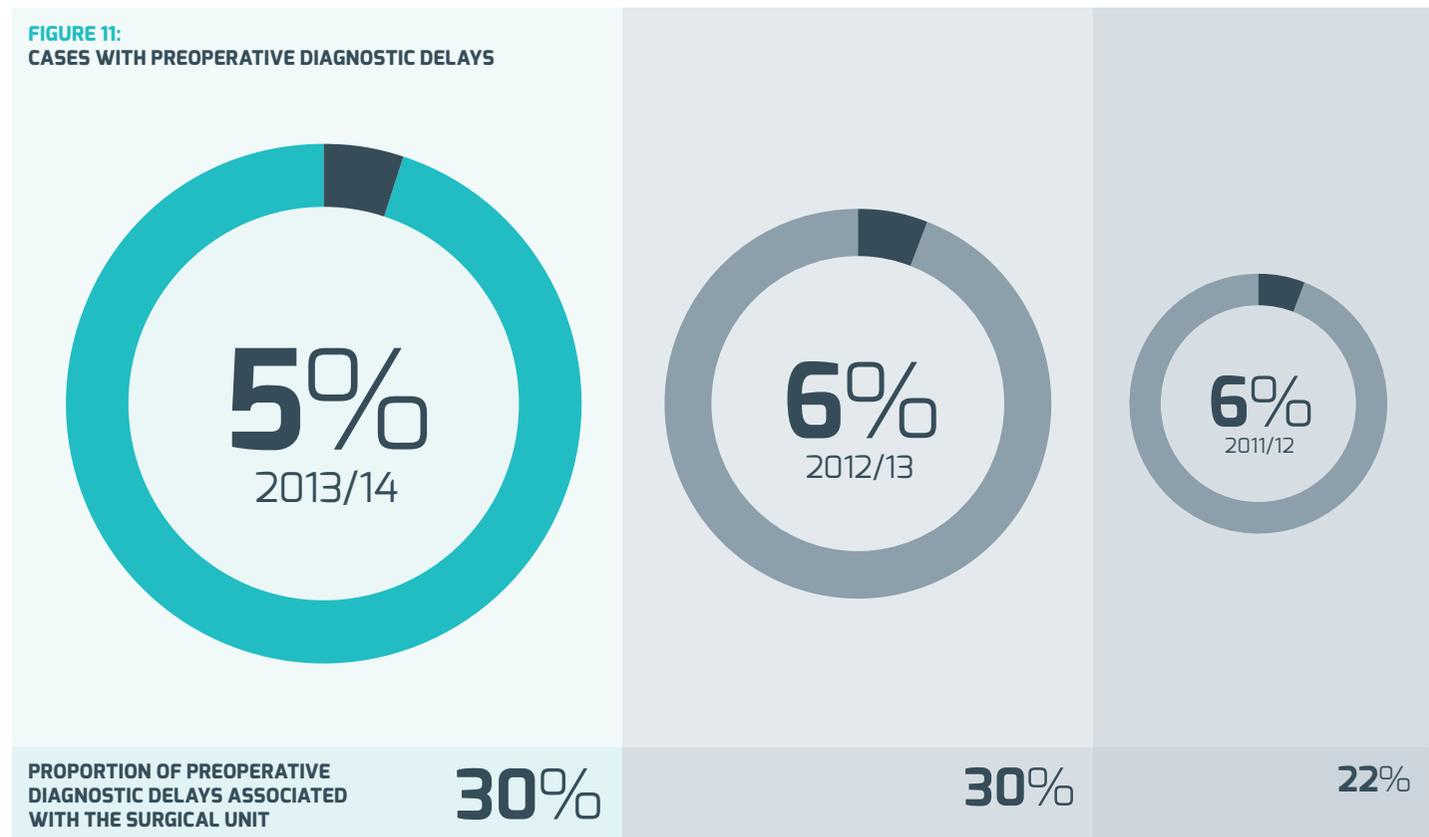
- **4** CAUSED BY UNAVOIDABLE FACTORS
- **3** CAUSED BY UNSEEN RESULTS
- **3** CAUSED BY INEXPERIENCED STAFF
- **30%** ASSOCIATED WITH SURGICAL UNIT

### 10. Preoperative diagnostic delays

A preoperative delay in diagnosis was identified by the treating surgeon in 5% of cases (FIGURE 11). One third of preoperative diagnostic delays (30%) were associated with the surgical unit.

The most frequently cited causes of diagnostic delays were unavoidable factors (4), followed by results not seen (3) and inexperienced staff (3).

FIGURE 11:  
CASES WITH PREOPERATIVE DIAGNOSTIC DELAYS



# CLINICAL MANAGEMENT ISSUES – OPERATIVE CASES

13% PREOPERATIVE MANAGEMENT

11% DECISION TO OPERATE

7% TIMING OF OPERATION

5% INTRAOPERATIVE MANAGEMENT

5% POSTOPERATIVE CARE

## 11. Clinical management issues identified by assessors

For each case reported to the SAAPM the first-line assessor is asked to identify and describe any clinical management issues. In 2% of cases, a more comprehensive assessment (case note review) was completed by a second-line assessor. A SLA occurs when the first-line assessor considers that insufficient information was provided on the SCF, or there were factors that warrant further investigation. The SLA is used in this analysis for cases which underwent both FLA and SLA.

Clinical management issues are identified by assessors in two ways:

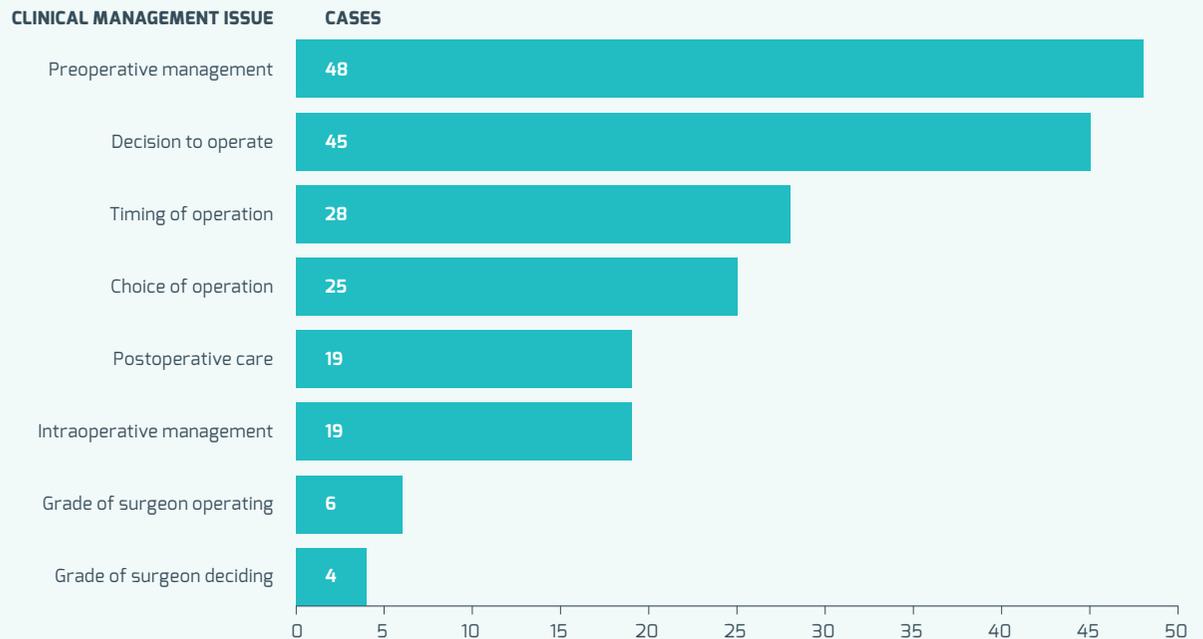
1. by indicating (yes or no) whether there were any concerns about specified categories of patient management (operative cases only);
2. by identifying and describing any perceived deficiencies of care in the management of the patient (operative and nonoperative cases).

### Clinical management issues associated with operative cases

Preoperative management was the clinical management issue most frequently identified by assessors for operative cases 13% (48).

**FIGURE 12** shows the frequency of the different issues.

**FIGURE 12:**  
CLINICAL MANAGEMENT ISSUES IDENTIFIED BY ASSESSOR (OPERATIVE CASES)



**92%** CASES – NO SERIOUS CLINICAL MANAGEMENT ISSUES  
**108** CLINICAL MANAGEMENT ISSUES REPORTED  
 – **50** SERIOUS CLINICAL MANAGEMENT ISSUES  
 – **33** SERIOUS ISSUES CONSIDERED PREVENTABLE

## 11. Clinical management issues identified by assessors (continued)

### Clinical management issues associated with all cases

No serious clinical management issues were identified in 92% of audited cases. In these cases, death was due either to the disease process or to complications that were unavoidable given the presence of serious comorbidities. The proportion of cases for which areas of concern or adverse events were identified, 8% (50), was similar to the proportion reported in 2012/13 (7%). The number of clinical management issues in each category in 2013/14 is shown in **TABLE 1**.

The audited surgical team was considered responsible for 56% (61/108) of the clinical management issues. An overview of the teams and areas associated with clinical management issues is provided in **TABLE 2**.

The majority of areas of consideration were in the preoperative period. The most frequently identified areas were:

- decision to operate;
- delay in diagnosis;
- delay to surgery;
- different surgical procedure desirable;
- inadequate preoperative care;
- failure to use critical care;
- fluid balance;
- inadequate preoperative assessment.

Assessors were asked whether the issue identified caused or contributed to the patient's death and whether it could have been prevented. Among the 50 most serious issues, those categorised as areas of concern or adverse events, 88% (44) were assessed as having caused or potentially contributed to the death of the patient of which 75% (33) were considered preventable (**FIGURE 13**).

Assessors found that an adverse event, the most serious category of clinical management issue, caused the death of a patient in eight of the 505 cases for which data were available (2%), compared with four of 487 cases (<1%) in 2012/13.

Assessors identified 13 cases in which an adverse event or area of concern caused the death of the patient. Two of the 13 deaths were considered definitely preventable, and a further seven deaths were considered to be probably preventable. Intraoperative complications were the most frequently reported type of adverse event.

**TABLE 1: Total number of clinical management issues**

Category	Clinical management issue (n)
Area of consideration	58
Area of concern	32
Adverse event	18

**Note:** n=108 clinical management issues; some cases had more than one issue.

**TABLE 2: Responsible unit associated with areas of consideration, concern or adverse events**

Category	Surgical unit	Another clinical unit	Hospital	Other
Area of consideration	28	8	4	5
Area of concern	20	19	2	2
Adverse event	13	4	0	4
<b>Total</b>	<b>61</b>	<b>31</b>	<b>6</b>	<b>11</b>

**Note:** Some clinical management issues were associated with more than one team; Missing data: n=12 cases

**FIGURE 13: SERIOUS CLINICAL MANAGEMENT ISSUES – OUTCOME AND PREVENTABILITY (ASSESSOR'S VIEW)**



\*Considered by assessors as being probably or definitely preventable

Since the audit commenced there has been a general downward trend in the proportion of cases with serious clinical management issues.  
(see **FIGURE 14**).

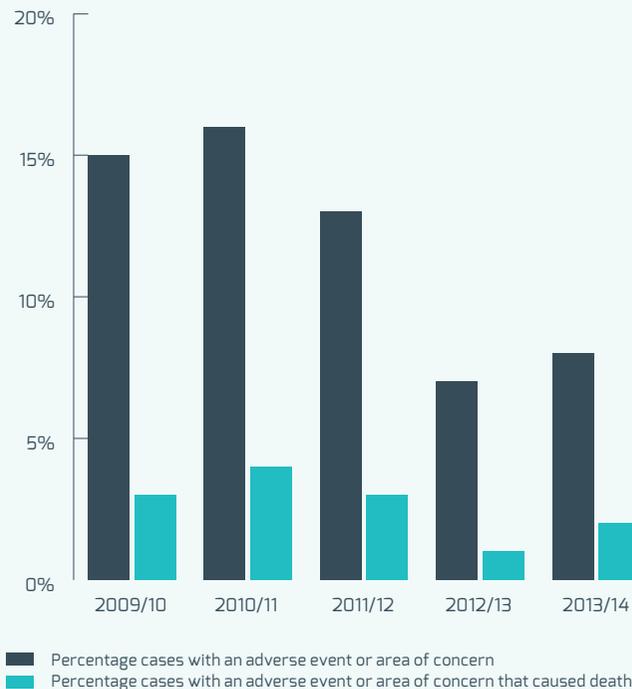
## 11. Clinical management issues identified by assessors (continued)

Serious clinical management issues were twice as common in elective (16%) compared with emergency admissions (7%) (**FIGURE 15**).

The difference in the proportion of cases with serious clinical management issues for elective and emergency admission groups is not as marked as it has been in previous years.

In terms of responsibility for serious clinical management issues, assessors attributed 58% to the audited surgical team, 50% to another clinical team and 8% to the hospital (**FIGURE 16**). (note: more than one attribution can be selected).

**FIGURE 14:**  
CASES WITH A SERIOUS CLINICAL  
MANAGEMENT ISSUE BY AUDIT PERIOD  
2009/10 TO 2013/14



**FIGURE 15:**  
SERIOUS CLINICAL MANAGEMENT ISSUES  
BY ADMISSION STATUS AND AUDIT PERIOD  
2009/10 TO 2013/14



The type and frequency of serious clinical management issues is shown below. Issues at the preoperative stage were the most commonly reported.

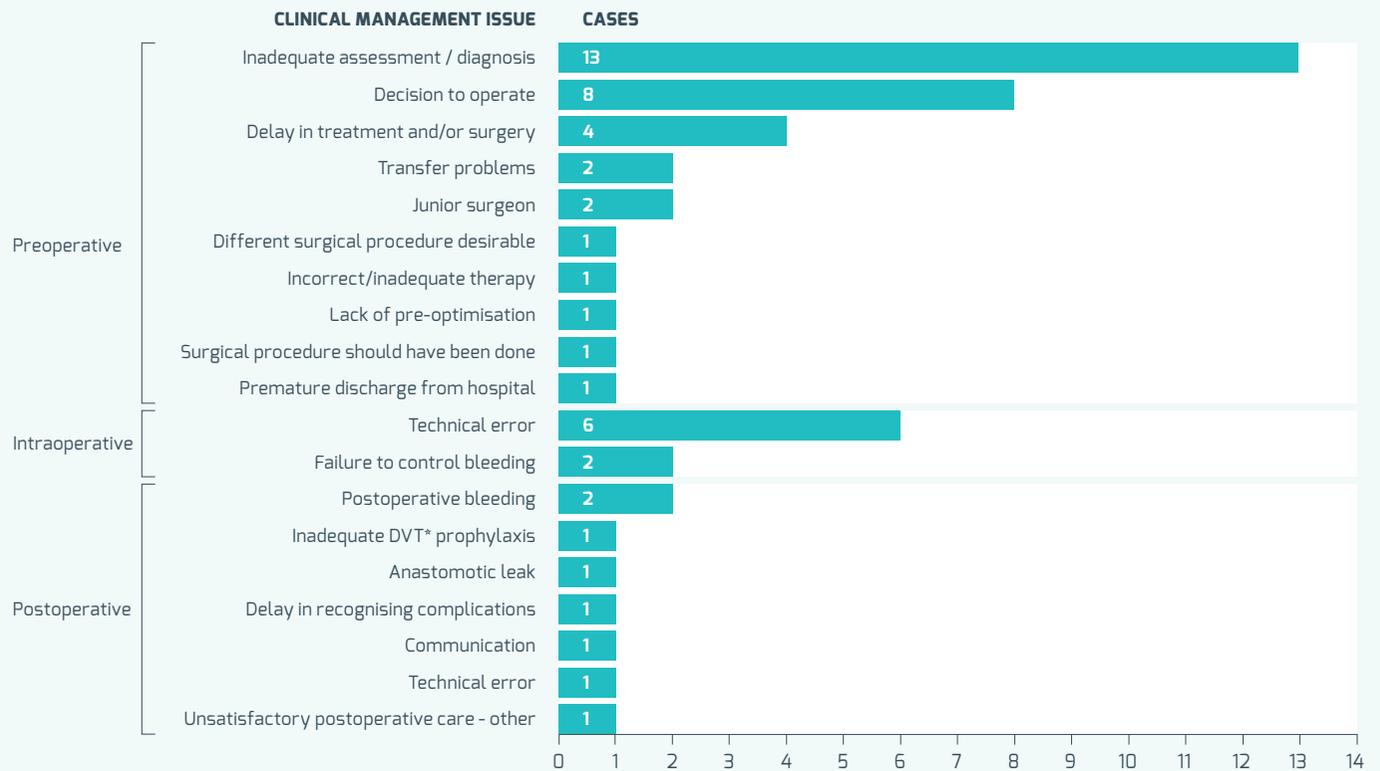
## 11. Clinical management issues identified by assessors (continued)

**FIGURE 16:**  
SERIOUS CLINICAL  
MANAGEMENT ISSUES –  
RESPONSIBILITY



**Note:** Some clinical management issues were associated with more than one team

**FIGURE 17:**  
SERIOUS CLINICAL MANAGEMENT ISSUES IDENTIFIED BY ASSESSORS – ALL CASES



\*DVT = Deep vein thrombosis

Recognising the importance of surgeons' support and the value of their feedback, the SAAPM team recently conducted a survey asking surgeons to evaluate the audit process, publications and activities. Questionnaires were sent to all surgeons currently practising in South Australian hospitals (according to the SAAPM records) and a 56% response rate was achieved. The feedback was largely positive.

## 12. SAAPM evaluation survey

### General feedback

The majority of surgeons surveyed (86%) reported that participation in SAAPM had influenced their practice in one or more areas (**FIGURE 18**), most commonly the following:

- increased constructive discussion amongst peer group;
- improvement in the quality of documentation in case notes;
- attention to postoperative care;
- attention to DVT prophylaxis;
- attention to supervision issues.

### Case note review booklets

Case note review booklets describe selected cases drawn from the national pool and from a range of specialties, with a focus on the clinical lessons that can be learnt. Of the SAAPM's activities and publications, these booklets were rated most highly, with 93% of respondents reporting having read the booklets (**FIGURE 19**).

Of those respondents who read the booklets, 98% found the reviews to be useful and educative (**FIGURE 20**). Comments on the booklets included:

*"It gives us an insight into situations which we may be similarly involved in at some stage and makes us more prepared"*

*"It's useful to see how problems evolve and where early intervention can prevent major complications"*

*"Review of these cases provides useful insight into the thinking process that may be associated with a poor outcome".*

**FIGURE 18:**  
SAAPM PARTICIPATION  
INFLUENCE ON PRACTICE



**FIGURE 19:**  
CASE NOTE REVIEW BOOKLETS:  
READERSHIP PERCENTAGE



**FIGURE 20:**  
CASE NOTE REVIEW BOOKLETS:  
RATED USEFUL & EDUCATIVE



### Assessor feedback

Of the respondents who had submitted a case to the SAAPM, 95% believed that the feedback letters from assessors were useful (26% very useful; 50% useful; 18% somewhat useful). Many surgeons commented that the constructive feedback provided by assessors had influenced their practice, for example: *"I find these to be very informative. They form the basis for change in the way I practise medicine"*. Referring to cases in which no clinical management issues were identified by assessors, one respondent commented that it was valuable to receive *"reassurance that the patient died despite our best efforts"*.

### Individual surgeons report

Each year the SAAPM provides an individual report to each surgeon who had a surgical death audited in that year. These reports present comparative data (all surgeons and by specialty) relating to return of forms, number of deaths and clinical management issues. Information is also provided on the surgeon's own cases, including details of each case (de-identified) and a description of any clinical issues identified by the assessor. Of those surgeons who had received this report 89% felt that it was useful, educative or both.

## 13. Acknowledgements

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- all first-line assessors
- all second-line assessors
- medical records, safety and quality, and risk management departments in all participating hospitals
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  - Health System Management, Information and Communication Technology Services
- the South Australian Regional Committee of the Royal Australasian College of Surgeons
- staff in the Research, Audit and Academic Surgery (RAAS) Division of the Royal Australasian College of Surgeons, particularly:
  - Professor Guy Maddern                      Chair, ANZASM Steering Committee
  - Associate Professor  
    Wendy Babidge                              Director, RAAS Division
  - Mr Gordon Guy                                ANZASM Manager
  - Ms Pip Coleman                                Business & Development Manager
  - Ms Felicity England                          Projects Contracts Manager
- members of the SAAPM Management Committee:
  - Mr Glenn McCulloch                        Clinical Director, SAAPM Chair and Surgical Representative
  - Mr David Walsh                                Surgical Representative
  - Mr Paul Dolan                                  Surgical Representative
  - Dr Roy Watson                                  RANZCOG Representative
  - Dr Simon Jenkins                              Anaesthetist Representative
  - Dr Stephen Christley                         The South Australian Department for Health and Ageing
  - Ms Michele McKinnon                        The South Australian Department for Health and Ageing
  - Ms Elaine Golding                             Community Representative
  - Dr Sonja Latzel                                 SA Regional Committee Representative
- SAAPM staff:
  - Ms Sasha Stewart                            SAAPM Project Manager
  - Ms Kimberley Cottell                        SAAPM Project Officer
- the regional audits of surgical mortality:
  - Australian Capital Territory Audit of Surgical Mortality (ACTASM)
  - Collaborating Hospitals' Audit of Surgical Mortality (CHASM)
  - Northern Territory Audit of Surgical Mortality (NTASM)
  - Queensland Audit of Surgical Mortality (QASM)
  - Tasmanian Audit of Surgical Mortality (TASM)
  - Victorian Audit of Surgical Mortality (VASM)
  - Western Australian Audit of Surgical Mortality (WAASM)

The focus of this feature article is on SAAPM cases from 2013/14 involving a preoperative adverse event or area of concern. Two particular types of clinical management issue are highlighted: **delays relating to the diagnosis or treatment of Fournier gangrene or necrotising fasciitis and lack of appropriate services.**

## 14. Feature article: serious clinical management issues in preoperative care

**TABLE 3** shows the number of serious preoperative issues by specialty, as well as the attribution of responsibility for the issues, as identified by assessors. As shown in this table, approximately half of the clinical management issues were the responsibility of the treating surgical unit. The issues (regardless of unit responsible) are described below:

- delays in investigating the patient appropriately (6);
- decision to operate (case usually considered hopeless by assessors) (6);
- diagnosis of ischaemic bowel missed (4; in three cases this was associated with the medical unit);

- poor communication regarding treatment (3);
- delays in transfer and/or referral of ruptured aortic abdominal aneurysm (3);
- Fournier gangrene or necrotising fasciitis misdiagnosed or treatment delayed (3);
- delay in transfer (3; in one case this was due to transportation issues);
- inappropriate use of medications (anticoagulants and nephrotoxic medication) (2);
- junior surgeon making wrong decision (in one case the decision to operate and in one case the decision to not operate) (2);
- diagnosis of subarachnoid haemorrhage missed in emergency department (1);
- facilities not available for optimisation of patient for bariatric surgery (1).

### Fournier gangrene and necrotising fasciitis

There were three cases of Fournier gangrene or necrotising fasciitis in which the diagnosis was not reached rapidly or the treatment was delayed. Case details are summarised below.

#### Case A:

An elderly patient had a total colectomy for toxic megacolon and developed para-stomal necrotising fasciitis 48 hours postoperatively. There was a delay of 48 hours before debridement as there was a lack of agreement between treating surgical units as to the correct diagnosis.

#### Case B:

An elderly diabetic man presented with scrotal swelling which soon became severe with intra-scrotal gas on computed tomography scan (missed by radiology). A junior urology staff member decided that surgical procedure was not needed but the next day the consultant decided otherwise.

#### Case C:

An elderly diabetic woman presented with perineal oedema and was diagnosed initially as having a urinary tract infection. After 48 hours the correct diagnosis was reached but there was still a delay in debridement as the junior urology staff member did not advise surgical procedure.

It is apparent from these cases that the diagnosis is not always made rapidly even when the clinical features are atypical for the original tentative diagnosis (such as urinary tract infection). All medical staff should be aware of the clinical features of necrotising fasciitis or Fournier gangrene, and the need for early debridement.

#### Services not available

Surgeons rarely identify the lack of services for treatment as being a contributing factor to death. In one case the patient had morbid obesity and was advised to have a stomach banding procedure.

**TABLE 3: Number of, and responsibility for, serious clinical management issues associated with preoperative care by specialty, 2013/14**

Surgical Specialty	Clinical management issues (n)	Treating surgical unit responsible (n)
General surgery	15	6
Vascular surgery	9	4
Orthopaedic surgery	3	2
Plastic and Reconstructive surgery	3	0
Cardiothoracic surgery	2	2
Neurosurgery	1	0
Otolaryngology Head and Neck surgery	1	1
<b>Total</b>	<b>34</b>	<b>15</b>

He was also advised to go on a very low calorie diet but was unable or unwilling to do so. The operative procedure was difficult due to a very large fatty liver. Operative access difficulties resulted in a liver laceration (bleeding controlled). There was also postoperative airway obstruction. The assessors felt that preoperative optimisation may have lessened the risks of surgery, and suggested that a very low calorie diet (VLCD) would have decreased the liver size. The second-line assessor commented:

*“Preoperative VLCD to reduce the size of the visceral organs is a standard practice for most bariatric surgeons around the world. Also known as a “liver-shrinking diet”, it is essentially a fat free diet for two to four weeks preoperatively which can reduce the liver volume by 20-30% and result in a total weight loss of 7-15 kg.”*

After receiving the assessor's feedback, the treating surgeon commented:

*“In my public hospital, there are no resources for allied health prehabilitation services such as dietician and exercise physiologist/physiotherapist to address preoperative conditioning and VLCD prior to elective services. Additionally, obesity is not currently considered a disease by the Australian Health system (despite being recognised as such by Hippocrates in around 400BC and the American Medical Association in 2013). As such, patients with morbid obesity do not qualify for GP Health Management Plans (which would enable them to access dietician, exercise and other allied health services) unless they have comorbid disease. I believe that the provision of preoperative weight loss support services in public hospitals and GP Health Management Plans in the community [are] essential for the management of the morbidly obese.”*