

Tasmanian Audit of Surgical Mortality

Annual Report 2020-21

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Foreword from TASM

This report covers the financial year 2020–2021 (the 19th year since inception of the audit in Tasmania). The COVID-19 pandemic has continued to impact medical care in Australia during the reporting period, not least by the ongoing curtailment of elective surgery and continuing surveillance of the impacts of long COVID (post-COVID condition).

The aim of any surgical audit is to assess clinical care, identify problems, encourage necessary changes in practice and confirm improvements. Identifying and changing a specific activity and then documenting a sustained improvement is a neat, tidy outcome that is easy to explain. The reality is different. More often, the change required is systematic, slow to enact and complicated by wide yearly variation. The ongoing annual audit cycle has led to sustained improvement in care over time.

Participation in the Australian and New Zealand Audit of Surgical Mortality process is now a mandatory component of the continuing professional development program for Fellows of the Royal Australian College of Surgeons. TASM continues to work with all Tasmanian hospitals (public and private) to achieve early notification of deaths so the audit process can commence without delay and to engage with surgeons to facilitate early completion of the surgical case form.

I want to thank the Tasmanian Department of Health for continued funding of this important quality insurance activity. I also acknowledge the TASM management committee and staff, and Tasmanian private hospitals, surgeons and gynaecologists anaesthetists for their continuing support during the reporting period.

Dr Rob Bohmer
Clinical Director, Tasmanian Audit of Surgical Mortality

Abbreviations

ANZASM	Australian and New Zealand Audit of Surgical Mortality
ANZCA	Australian and New Zealand College of Anaesthetists
AOA	Australian Orthopaedic Association
ASA	American Society of Anesthesiologists
CCU	critical care unit/critical care utilisation
CHASM	Collaborative Hospitals Audit of Surgical Mortality
CMI	clinical management issue
COPMM	Council of Obstetric and Paediatric Mortality and Morbidity
CPD	continuing professional development
DVT	deep vein thrombosis
FLA	first-line assessment
IQR	interquartile range
M&M	Mortality and Morbidity
NSQHS	National Safety and Quality Health Service
PE	pulmonary embolism
RACS	Royal Australasian College of Surgeons
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists
SCF	surgical case form
SLA	second-line assessment
TASM	Tasmanian Audit of Surgical Mortality

1. Executive summary

The Tasmanian Audit of Surgical Mortality (TASM) was mandated by the Royal Australasian College of Surgeons (RACS) in 2010 as part of its continuing professional development (CPD) program. Compliance with the audit is determined by the number of cases that have completed the audit process compared with the total number of surgical deaths in the audit period. Key findings in this report are based on 117 peer-reviewed cases from the audit period **1 July 2020 to 30 June 2021**.

1.1 Hospital admission and operative patient profile

The most frequent operative procedures described during the audit period (2020–2021), were for General Surgery (including trauma and colorectal subspecialties). During the current audit period (2020–2021), most patients (86.3%; 101/117) had at least one operation during their final hospital admission. Of the patients who had surgery, 18.8% (19/101) had an unplanned return to the operating theatre due to complications. A consultant surgeon was present in theatre for 77.4% (106/137) of operations, which was almost identical to the national average of 77.5% (2,332/3,010). The presence of a consultant surgeon in audit cases is appropriate due to the more challenging nature of emergency cases with greater risks.

1.2 Clinical management issues

Clinical management issues (CMIs) identified in this audit show that more than one issue can occur during a patient's hospital stay (Section 13.3).

There were no criticisms of patient management in 73.5% (86/117) of audited cases, whereas the peer-review process found faults in the management of the remaining 26.5%. In 11.1% of cases (13/117), the criticisms were mild and considered to be differences of opinion (areas of consideration); in 10.3% (12/117) the assessments were more severe (classified as areas of concern), and in 4.3% of cases (5/117) the peer-review process concluded that adverse events had occurred.

Individual criticisms of CMIs for each case have been directed to the treating surgeons to allow feedback and reflection. It is important to note that not all CMIs are associated with the surgical team.

1.3 Potentially preventable clinical outcomes

In addition to identifying CMIs, clinical assessors decide whether those issues were potentially preventable. The rate of preventability of adverse events or areas of concern has increased from 10.5% (10/95) in 2019–2020 to 13.7% (16/117) in 2020-2021 (Section 13.3, Table 6). TASM distributes clinical performance reports to each participating site, allowing for healthcare services to examine their own de-identified potentially preventable outcomes.¹

The key TASM recommendations in this report reflect 6 of the 8 National Safety and Quality Health Service (NSQHS) Standards² that can be used by hospitals and health professionals to improve clinical practice and patient safety. The overall goal is that the information TASM collects will help all surgical Fellows and participating healthcare organisations improve the quality of their services and safeguard high standards of care.

2. Introduction

2.1 Background

The Tasmanian Audit of Surgical Mortality (TASM) is an independent, peer-reviewed audit of the processes of care associated with surgery-related deaths in Tasmania. Established in 2003, TASM is funded by the Tasmanian Department of Health and has protection under the Commonwealth Qualified Privilege Scheme, Part VC of the Health Insurance Act 1973 (gazetted 24 April 2022). Participation in TASM became a mandatory requirement of the Royal Australasian College of Surgeons (RACS) in 2010 and has been part of its continuing professional development (CPD) program since 2013.

TASM is a patient safety and quality improvement initiative. The collection of data over time enables TASM to detect and highlight emerging trends and system/process errors in surgical care to facilitate changes in practice, thereby improving patient safety and outcomes. This is achieved through an educational peer-review process, of which provision of information and feedback to surgeons is an integral component.

2.2 Objectives

The objectives of TASM are:

1. to audit all surgery-related deaths meeting the following criteria:

- The patient was under the care of a surgeon, regardless of whether an operation was performed.
- The patient was under the care of a physician and subsequently underwent a surgical procedure.

(Cases outside of these criteria are excluded from the audit. Patients admitted under the care of a surgeon specifically for terminal care are excluded from the full audit process. These cases do not undergo peer review).

2. to analyse clinical management issues (CMLs) identified by assessors as follows:

- **Area for consideration**, where the clinician believes an area of care could have been improved but recognises that this may be an area of debate
- **Area of concern**, where the clinician believes that an area of care should have been better
- **Adverse event**, an unintended injury caused by medical management rather than by the disease process, which is sufficiently serious to lead to prolonged hospitalisation or to temporary or permanent impairment or disability of the patient at the time of discharge, or which contributes to or causes death.

3. Methods

3.1 Structure and governance

TASM is governed by the Australian and New Zealand Audit of Surgical Mortality (ANZASM), which is managed by Research, Audit and Academic Surgery (RAAS) of RACS. It is funded and supported by state and territory governments. The TASM Management Committee monitors the structures and processes involved in TASM quality assurance activities (Appendix A).

TASM is protected by federal legislation. ANZASM receives legislative protection under the Commonwealth Qualified Privilege Scheme, under part VC of the *Health Insurance Act 1973* (gazetted 24 April 2022).

3.2 Audit process

Public hospital deaths are reported to TASM via eHealth department officers. TASM is notified of deaths in private hospitals via health information departments. A consultant surgeon involved in the care of a patient may also self-report a death using the Fellows Interface, a web-based application developed by RACS specifically for audits of surgical mortality.

All deaths for which a consultant surgeon was involved in the care of a patient are included in the audit, whether or not the patient underwent a surgical procedure. Details and cause of death are recorded in the surgical case form (SCF) by the consultant surgeon. SCF details include the patient's diagnosis during the final admission, test results, operations and postmortem reports when available.

The peer-review process that follows submission of the SCF, is a retrospective assessment of the clinical management of the patient who died. Assessors must determine whether management of the patient was appropriate.

TASM's full audit process is outlined in Appendix B.

3.3 Providing feedback

The core purpose of TASM is to improve patient outcomes. This is accomplished by the provision of detailed feedback to consultant surgeons and hospitals to inform, educate, facilitate change and improve practice. This is achieved at different levels—individual, hospital or grouped—and provided in several ways:

- Feedback on individual cases
Consultant surgeons are provided with assessor feedback on individual cases. The identities of assessors remain anonymous at all times. TASM encourages consultant surgeons to complete a peer-review feedback evaluation form responding to the feedback received.
- Hospital report
Individual hospital reports are sent annually to all hospitals participating in TASM. These reports contain de-identified aggregated data that can be used for monitoring trends within the individual hospital and for comparisons with other participating peer-grouped hospitals across the country.

- Case Note Review Booklet

A selection of cases reviewed by assessors is summarised, collated and disseminated to all consultant surgeons for educational purposes. In addition, a national Case of the Month is emailed to consultant surgeons each month. All information in case note reviews is de-identified so events cannot be linked to individual patients, surgeons or hospitals.

- Annual Report

An annual report is published in late December and made available on the websites of TASM and RACS. It is also circulated to all consultant surgeons and hospitals in Tasmania and to the Tasmanian Department of Health.

- Surgical News

3.4 TASM contributes to the Case Note Review section of this RACS National Magazine on an annual basis Data analysis

TASM audits all surgery-related deaths occurring in Tasmanian hospitals. This 2020-2021 report focuses on deaths reported to TASM from **1 July 2020 to 30 June 2021**.

Cases are included in the full audit process if the patient was admitted with intent to treat but after assessment it was decided to manage the patient conservatively or to palliate. Patients admitted specifically for terminal care are excluded from the full audit process.

Data are entered and stored in the bi-national audit system database and analysed using the Statistical Package for Social Sciences (SPSS version 26) and Microsoft Office Excel (2010). Since not all data fields in the SCF are mandatory, for certain fields the total numbers used in each analysis may vary.

4. Rapid statistics Infographic

TASM works to ensure that a high standard of surgical care is maintained in Tasmania and that patients receive the best care possible. The data below presents audited cases from 1 July 2020 to 30 June 2021.

Tasmania has a reliable and safe healthcare system

Demographics



Population 541,315

Males 60.7%

Females 39.3%

Median age 75



Admission status

Elective 14.5%

Emergency 85.5%



Transfer

Patient transfer 25.6%

Risk



Preoperative risk of death

Expected 6.9%

Considerable 45.5%

Moderate 29.7%

Small 14.9%

Minimal 3.0%



Most common comorbidities

Cardiovascular 19.6%

Age 18.0%

Respiratory 14.0%

Other 10.6%

Neurological 9.0%



Most common causes of death

Respiratory failure 10.0%

Multi-organ failure 7.7%

Septicaemia 6.9%

Cardiac arrest

Heart failure

Other aspiration pneumonia

5.4%

5.4%

5.4%

Key Findings



Overview compared to 2019-2020 Annual Report

Increased mortality	Increased adverse events
Increased clinically significant infection	Decrease in patient care
Improved fluid balance management	Decrease in DVT prophylaxis utilisation








Peer-review outcomes


Adverse event	4.3%	Area for consideration	11.1%
Area of concern	10.3%	No issues	73.5%

5. National Safety and Quality Health Service Standards

This report can assist hospitals with accreditation for several National Safety and Quality Health Service (NSQHS) Standards².

Figure 1: National Safety and Quality Health Service Standards associated with TASM

National Safety and Quality Health Service Standards	TASM Key Recommendations
<p>Standard 1 Clinical Governance</p> 	<ul style="list-style-type: none"> - It should be clear who is responsible for a patient's care, with all decisions clearly charted and appropriately discussed. - All appropriate patients should be discussed at unit M&M meetings to facilitate learning from outcomes.
<p>Standard 2 Partnering with Consumers</p> 	<ul style="list-style-type: none"> - Consumer engagement should involve patients in planning their treatment and ensuring the decision to operate is understood. - Quality of life and end-of-life care should be considered. Goals of care should be clearly discussed and recorded for every admission to hospital. - TASM should engage with consumers and provide dedicated consumer information on TASM outcomes and conclusions.
<p>Standard 3 Preventing and Controlling Infections</p> 	<ul style="list-style-type: none"> - Infections should be controlled and managed with appropriate investigation, rapid administration of treatment and timely involvement of expert teams.
<p>Standard 5 Comprehensive Care</p> 	<ul style="list-style-type: none"> - Operations should only be performed in health services with appropriate facilities/support. - Preoperative multidisciplinary involvement should be improved to optimise each patient's clinical condition. - Timely escalation of surgical emergencies should be improved by earlier involvement of senior staff. - Falls in hospitals and residential care facilities should be reduced by monitoring risk assessments.
<p>Standard 6 Communicating for Safety</p> 	<ul style="list-style-type: none"> - All care plans and clinical events must be clearly documented. - Communication between health professionals and patients should incorporate discussion of consent. - Senior medical input should occur with all health services involved in patient transfers.

National Safety and Quality Health Service Standards	TASM Key Recommendations
	<ul style="list-style-type: none"> - All M&M recommendations should be reported to the hospital's clinical governance team.
<p>Standard 8 Recognising and Responding to Acute Deterioration</p> 	<ul style="list-style-type: none"> - Evidence of clinical deterioration should be recognised and acted upon. - Senior doctors should be involved in decision-making.

M&M = mortality and morbidity

The standards listed above have been selected based on shared learning from different specialty-based audit cases. Case studies are routinely provided to hospitals and health professionals and can be used to address areas of clinical practice and patient safety that need improvement.

6. Audit numbers

The TASM audit process relies on receiving notifications of deaths from participating hospitals. Each hospital prepares and submits a list of deaths that have occurred when a patient was under the care of a surgeon. Thus, the discharging unit would usually be recorded as surgical; however, in some instances a patient who has received surgical care may not be under the care of a surgeon at the time of death.

TASM aims to have all mortality cases reviewed within 2 months of notification. For the audit period 1 July 2012 to 30 June 2021, TASM received 1,212 notifications of deaths associated with surgical care. Cases recorded as admissions for terminal care (15.2%; 184/1,212) were excluded from the review process. There were 24 terminal-care cases in the current audit period 1 July 2020 to 30 June 2021.

Table 1: Trend of mortalities identified by TASM, 2012–2021

Audit period	Number of deaths reported	Deaths meeting criteria (Closed cases)	Deaths not meeting criteria (Terminal care)
2012–2013	135	121	14
2013–2014	139	118	21
2014–2015	147	133	14
2015–2016	162	140	22
2016–2017	113	94	19
2017–2018	134	108	26
2018–2019	133	102	31
2019–2020	108	95	13
2020–2021	141	117	24
Total	1,212	1,028	184

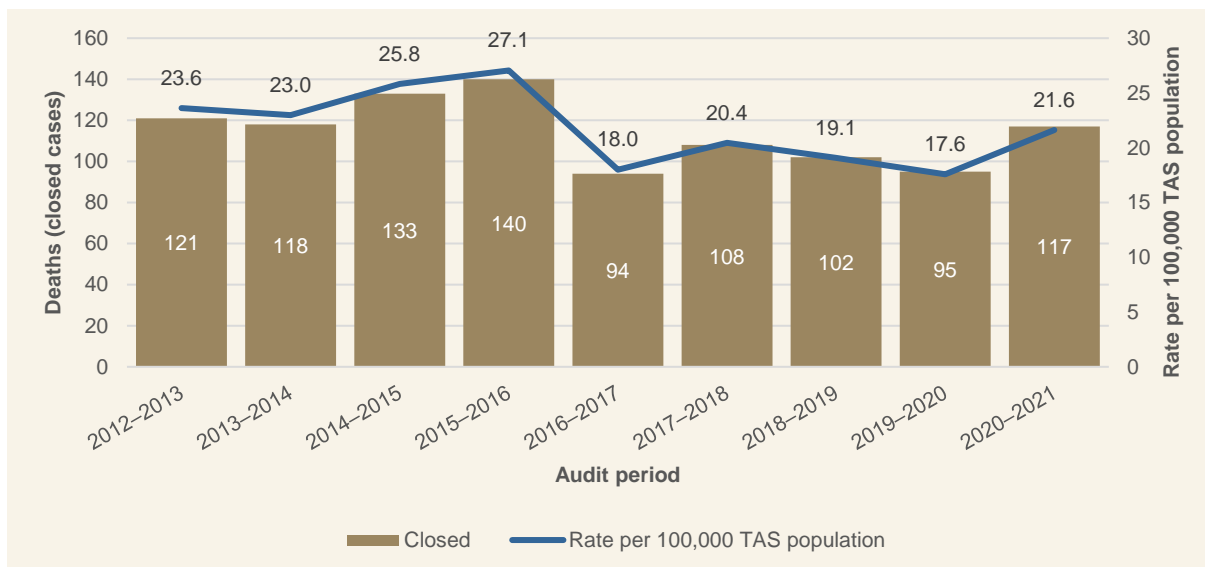
Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

TASM recorded an overall decrease of 8.5% (from 23.6% in 2012–2013 to 21.6% in 2020–2021) in the rate of deaths under the care of a consultant surgeon per 100,000 population (Figure 2)³.

However there has been a drop in mortality rate since 2015-16, which has remained relatively steady since then still 2021.

Figure 2: Mortality rate per 100,000 Tasmanian population, 2012–2021



7. Audit compliance

All hospitals providing surgical services are expected to participate with audit requirements. Regular reporting of mortalities from hospitals launches the audit process. RACS Fellows must agree to participate and must return completed SCF and assessment forms in a timely and accurate manner. Surgeons in Tasmania completed SCFs for 100.0% (141/141) of notified deaths in 2020–2021.

Each of these steps of the audit process—submission of the SCF, first-line assessment (FLA) and second-line assessment (SLA)—should be completed within 21 days. For complex cases, obtaining medical records and other documentation (for SLA) can take up to 2 months.

To ensure that the maximum number of surgery-related cases are captured, Board members of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG), and the Australian and New Zealand College of Anaesthetists (ANZCA) have approved formal collaboration with ANZASM in the audit process. The Council of Obstetric and Paediatric Mortality and Morbidity (COPMM) continues to separately review obstetric and neonatal deaths.

The Australian Orthopaedic Association(AOA) mandated formal collaboration with RACS in TASM.

This report focuses on the clinical outcomes of the 117 closed cases that completed the audit process in the reporting period 1 July 2020 to 30 June 2021 and compares these outcomes to those of previous years.

Of the reported mortalities in the current audit period, 17.0% (24/141) were excluded from further analysis due to being terminal-care admissions.

Table 2 shows TASM deaths for each surgical specialty during the audit period 1 July 2012 to 30 June 2021. General Surgery (including colorectal subspecialty) reported the most deaths at 47.1% (571/1,212), followed by Orthopaedic Surgery at 17.1% (207/1,212) and Neurosurgery at 14.1% (171/1,212).

Table 2: TASM deaths by surgical specialty, 2012–2021

Surgical specialty	Number of deaths	Percentage (%)
General Surgery [^]	571	47.1
Orthopaedic Surgery	207	17.1
Neurosurgery	171	14.1
Cardiothoracic Surgery	79	6.5
Vascular Surgery	71	5.9
Urology	71	5.9
Otolaryngology Head and Neck	17	1.4
Plastic Surgery	15	1.2
Obstetric* & Gynaecology	5	0.4
Paediatric Surgery	3	0.2
Oral/Maxillofacial	2	0.2
Total	1,212	100.0

Abbreviations

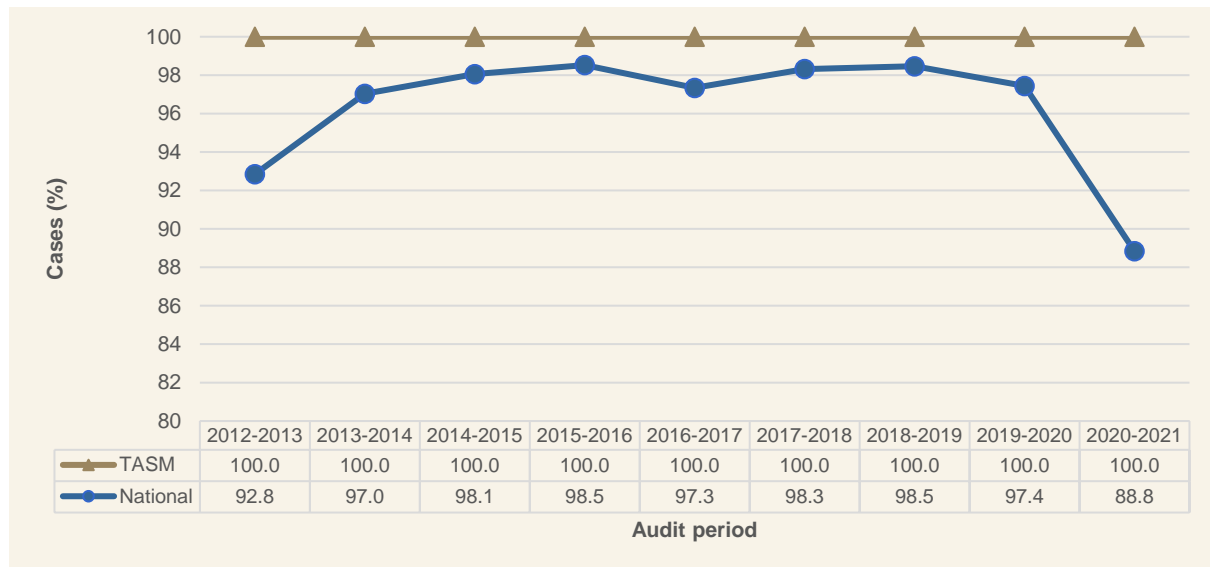
TASM = Tasmanian Audit of Surgical Mortality

[^]General Surgery cases include colorectal subspecialty

Obstetric cases are not included in the audit process; only gynaecological cases are audited.

Figure 3 illustrates changes in the SCF return rate for surgeons in Tasmania compared to surgeons nationally for the period 2012–2021. The Tasmanian rate for completed SCFs for this period is 100.0% (1,212/1,212), which is higher than the national average of 96.4% (36,730/38,117).

Figure 3: Compliance by return rate of SCF to TASM compared to national data, 2012–2021



Abbreviations

SCF = surgical case form, **TASM** = Tasmanian Audit of Surgical Mortality

Notes

n=1,212 SCFs returned out of 1,212 reported cases in Tasmania from 1 July 2012 to 30 June 2021.

n=36,730 SCFs returned out of 38,117 reported cases reported nationally from 1 July 2012 to 30 June 2021.

Tasmanian data were excluded from the national data pool for the comparison.

8. Characteristics of audited deaths

Table 3 shows that the demographic data for Tasmania compared to the national data during the audit period. The risk of death classified as ‘considerable’ or ‘expected’ prior to surgery remains high at 52.4% (53/101) in Tasmania and 60.2% (1,327/2,204) nationally.

Table 3: Characteristics of audited deaths in Tasmania compared to national data, 2020–2021

		TASM	National
Number of audited deaths		n = 117	n = 2,744
Median age of patient in years (IQR)		75 (65–82)	77 (65–85)
Operative cases (%)		86.3	81.0
Sex (%)	Male	60.7	58.9
	Female	39.3	41.1
Admission status (%)	Elective	14.5	12.8
	Emergency	85.5	87.2
ASA grade (%)	ASA 1–2	10.3	7.1
	ASA 3	34.2	26.4
	ASA 4	32.5	48.0
	ASA 5–6	23.1	18.5
Risk of death prior to surgery (%)	Expected	6.9	9.7
	Considerable	45.5	50.5
	Moderate	29.7	24.6
	Small	14.9	11.1
Most common comorbid factors (%)	Minimal	3.0	4.1
	Cardiovascular	19.6	20.5
	Age	18.0	19.5
	Respiratory	14.0	10.9
	Other	10.6	8.2
	Neurological	9.0	79.0
	Renal	8.4	10.5
	Diabetes	6.8	7.7
	Advanced malignancy	5.3	7.6
Number of operative procedures performed (%)	Obesity	5.3	4.0
	Hepatic	3.1	3.3
	0	23.2	17.5
	1	61.1	65.1
	2	10.5	10.8
	3 or more	5.3	6.7

Abbreviations

ASA = American Society of Anesthesiologists, IQR = interquartile range, TASM = Tasmanian Audit of Surgical Mortality

Notes

The American Society of Anesthesiologists (ASA) Physical Status Classification System grade is an international measure of patient physiological reserve used by anaesthetists.⁴

Comorbidities describe coexisting medical conditions or disease processes additional to the primary diagnosis.

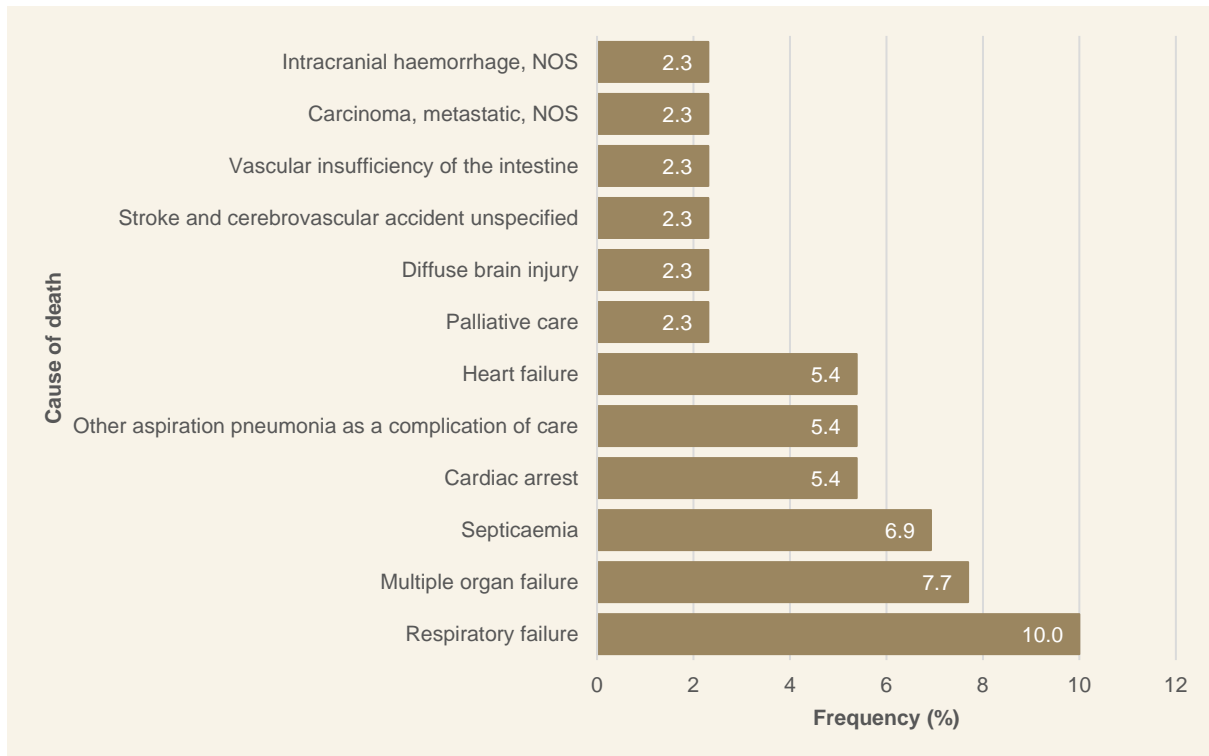
Each audited case can have more than one operation.

Tasmanian data were excluded from the national data pool for the comparison.

9. Establishing the cause of death

Cause of death as recorded by the treating surgeon is based on the clinical course of the patient and any relevant supporting evidence acquired from investigations. A patient can have multiple causes associated with their death. From 1 July 2020 to 30 June 2021, there were 130 conditions perceived to have caused death across 117 cases.

Figure 4: Most frequent causes of TASM deaths, 2020–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality, NOS = Not otherwise specified

Notes

n = 130 causes of death associated with 117 Tasmanian patients from 1 July 2020 to 30 June 2021.
 The 12 most frequent causes of death account for 54.6% (71/130) of the total.

Where doubt exists around the circumstances leading to death, the case is referred to the coroner. Coronial investigations and TASM peer-review assessment have different purposes. To avoid erroneous interpretation they should be considered complementary rather than parallel assessment tools. Both data sources add value to quality assurance activities to improve surgical care.

In the current audit period (2020–2021), 19.7% (23/117) of TASM cases received a coronial postmortem compared with a national rate of 12.5% (342/2,744). Over the full audit period (2012–2021), 26.0% (40/154) of elective cases and 13.1% (114/871) of emergency cases in Tasmania received a postmortem.

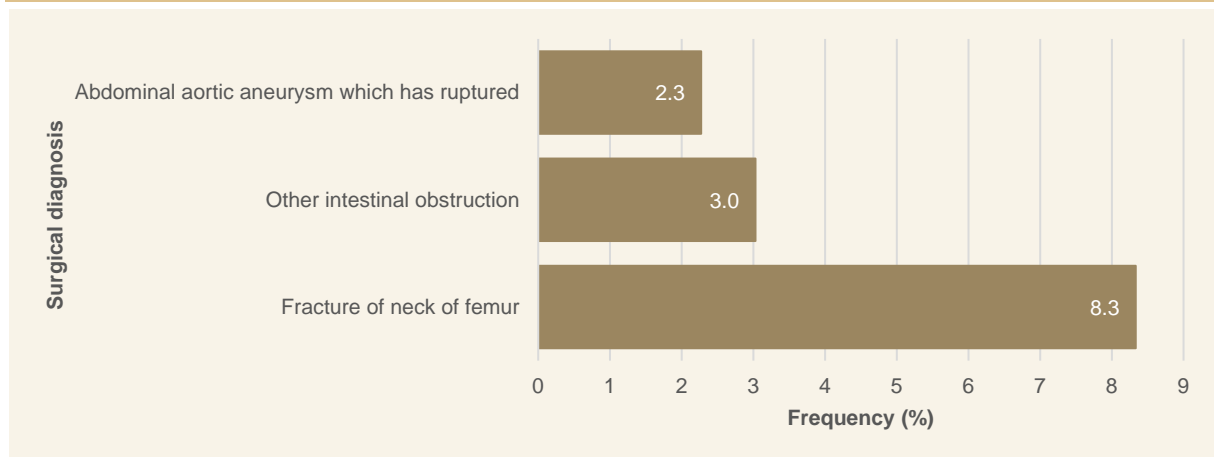
An Australian study examining clinicians’ understanding of deaths reportable to the Victorian coroner highlights that postmortems provide valuable educational information and provide insights for CMLs.⁵

10. Clinical risk management

10.1 Establishing the surgical diagnosis

Establishing a surgical diagnosis after review of test results, operations and any postmortems can indicate a patient’s condition prior to surgery. Patients can have multiple surgical diagnosis codes associated with their death. Surgical diagnoses have remained consistent over the years.

Figure 5: Most frequent TASM surgical diagnoses, 2020–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

n = 132 surgical diagnoses associated with 117 patients from 1 July 2020 to 30 June 2021.

The 3 most frequent surgical diagnoses account for 13.6% (18/132) of the total.

In the current audit period (2020–2021), the proportion of cases with malignancy identified as a comorbidity was 14.5% (17/117), which is slightly lower than that of the previous audit period (2019–2020) at 15.8% (15/95).

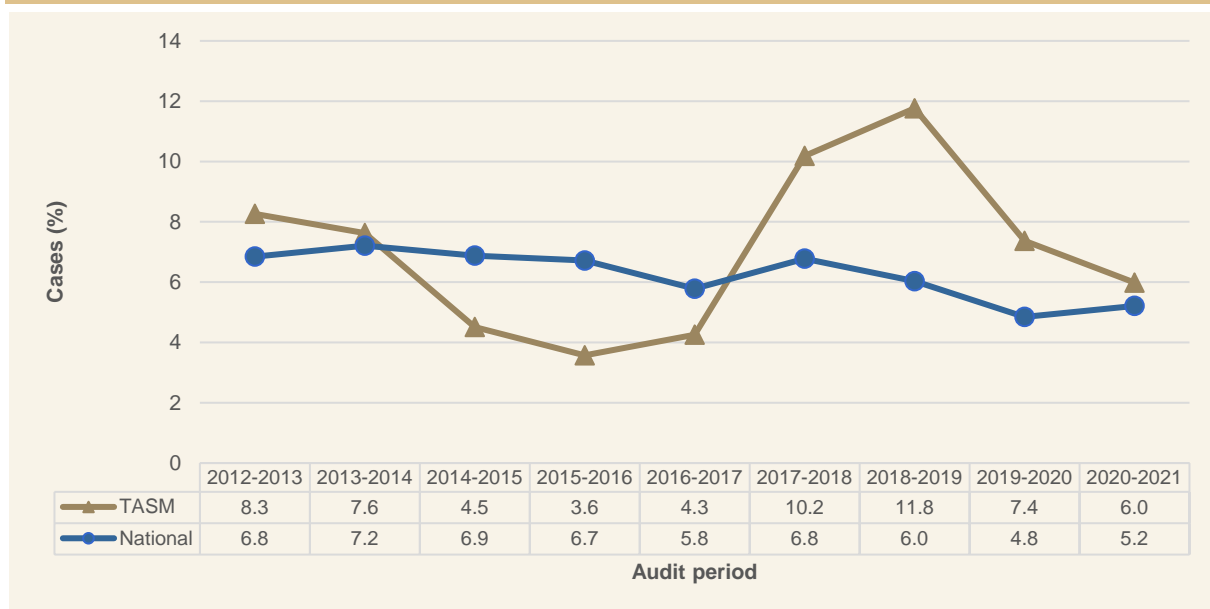
10.2 Delay in surgical diagnosis

Early diagnosis is critical in preventing surgical complications or deterioration, particularly in a frail patient. Delays in treatment are known to increase the risk of death.⁶ Treating surgeons are asked to reflect on and record any perceived delays in establishing a diagnosis and proceeding to definitive treatment.

For the current audit period (2020–2021), the rate of delay in establishing a diagnosis was 6.0% (7/117). In the previous audit period (2019–2020), Tasmanian surgeons reported delays in diagnosis in 7.4% (7/95) of operative cases in which the patient underwent at least one operation. For the total period 2012 to 2021, diagnostic delays were identified by treating surgeons in 6.9% (71/1,028) of audited deaths in Tasmania, comparable to the national finding of 6.3% (1,882/29,948).

It is important to note that delays are not always attributable to the surgical team, for example, late referral to a specialist or the patient presenting late.

Figure 6: Deaths with delay in surgical diagnosis compared to national data, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

The graph shows significant fluctuations due to small numbers.

n = 71 out of 1,028 Tasmanian patients with delays in surgical diagnosis from 1 July 2012 to 30 June 2021.

n = 1,882 cases out of 29,948 national patients with delays in surgical diagnosis from 1 July 2012 to 30 June 2021; data unavailable: n = 282.

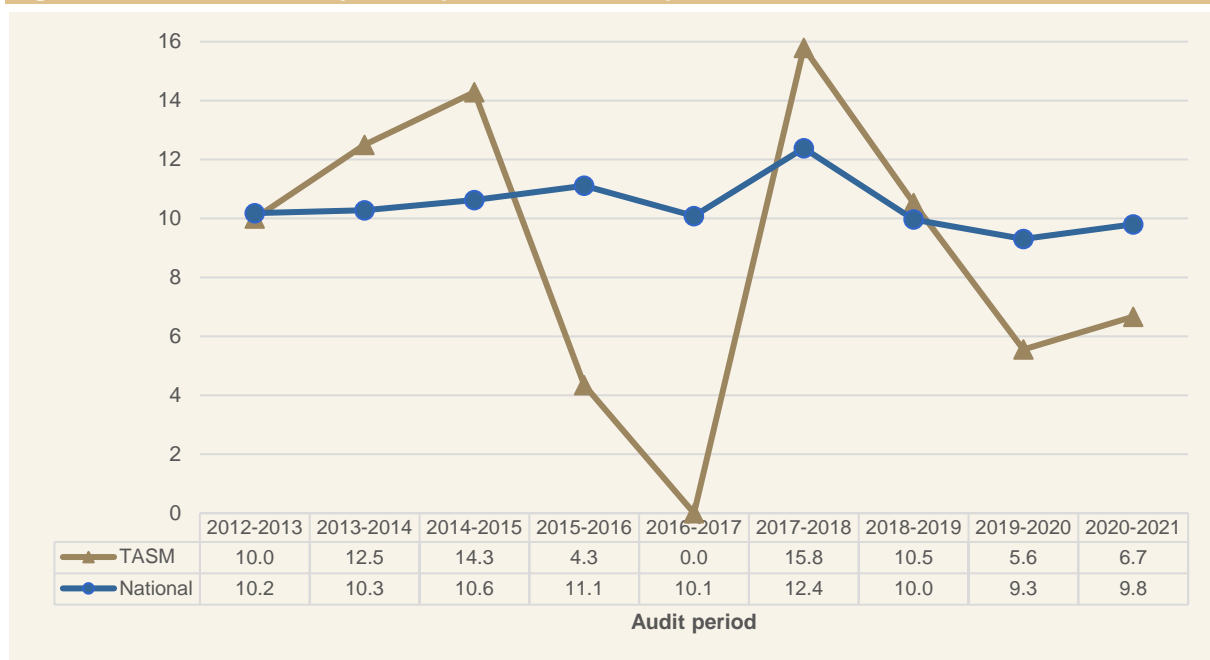
Tasmanian data were excluded from the national data pool for the comparison.

10.3 Delay in transfer to a hospital

Delays and problems in hospital transfer can cause risks and challenges for shared surgical care. In the current audit period (2020–2021), a small proportion of patients requiring preoperative transfer to another hospital experienced delays, inappropriate transfer or inappropriate care during the transfer. Thirty patients were transferred between hospitals and 6.7% of them (2/30) experienced issues associated with their transfer (Figure 7).

In the current audit period (2020–2021), Tasmania had slightly fewer pre-treatment transfer delays (6.7%; 2/30) compared to the national findings (9.8%; 64/653).

Figure 7: Deaths with delay in hospital transfer compared to national data, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

The graph shows significant fluctuations due to small numbers.

n = 16 out of 176 Tasmanian patients with delays in transfer from 1 July 2012 to 30 June 2021; data unavailable: n = 2.

n = 752 out of 7,193 national patients with delays in transfer from 1 July 2012 to 30 June 2021; data unavailable: n = 471.

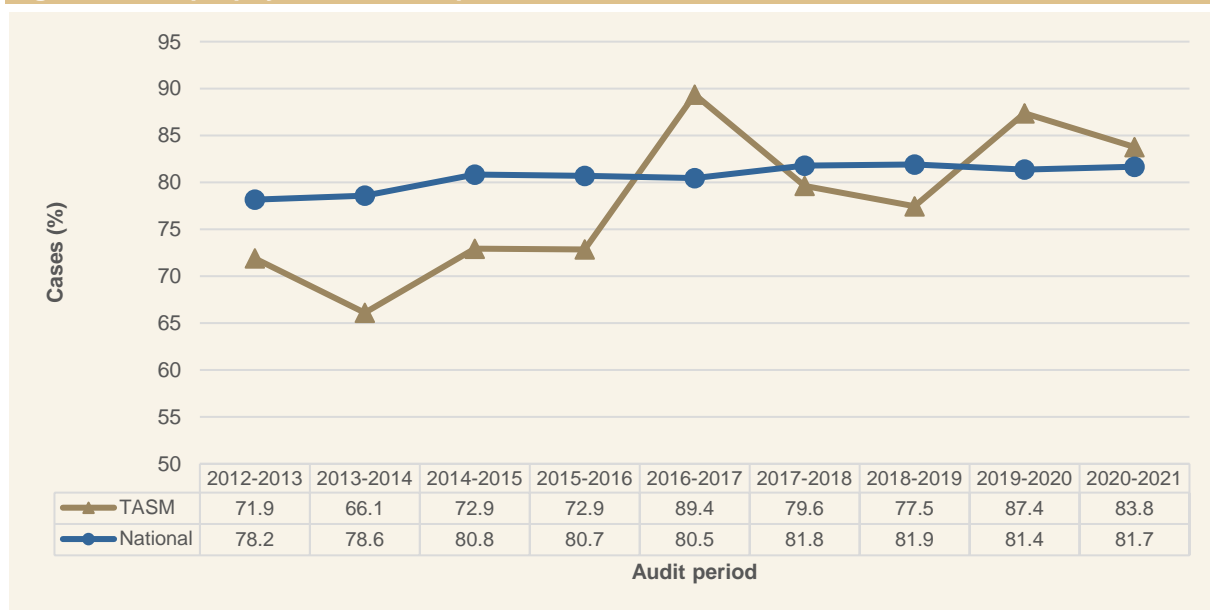
Tasmanian data were excluded from the national data pool for the comparison.

10.4 Deep vein thrombosis prophylaxis

Pulmonary embolism remains a major cause of death in hospital patients across Australia despite the availability of effective pharmacological and mechanical deep vein thrombosis (DVT) prophylaxis options. The appropriate use of DVT prophylaxis is outlined in the National Health and Medical Research Council’s clinical practice guideline for the prevention of venous thromboembolism in patients admitted to Australian hospitals⁷.

In Tasmania, DVT prophylaxis use decreased from 87.4% (83/95) in 2019–2020 to 83.8% (98/117) in 2020–2021.

Figure 8: DVT prophylaxis use compared to national data, 2012–2021



Abbreviations

DVT = deep vein thrombosis, TASM = Tasmanian Audit of Surgical Mortality

Notes

n = 794 out of 1,028 Tasmanian patients had DVT prophylaxis from 1 July 2012 to 30 June 2021.

n = 23,913 out of 29,657 national patients had DVT prophylaxis from 1 July 2012 to 30 June 2021; data unavailable: n = 573.

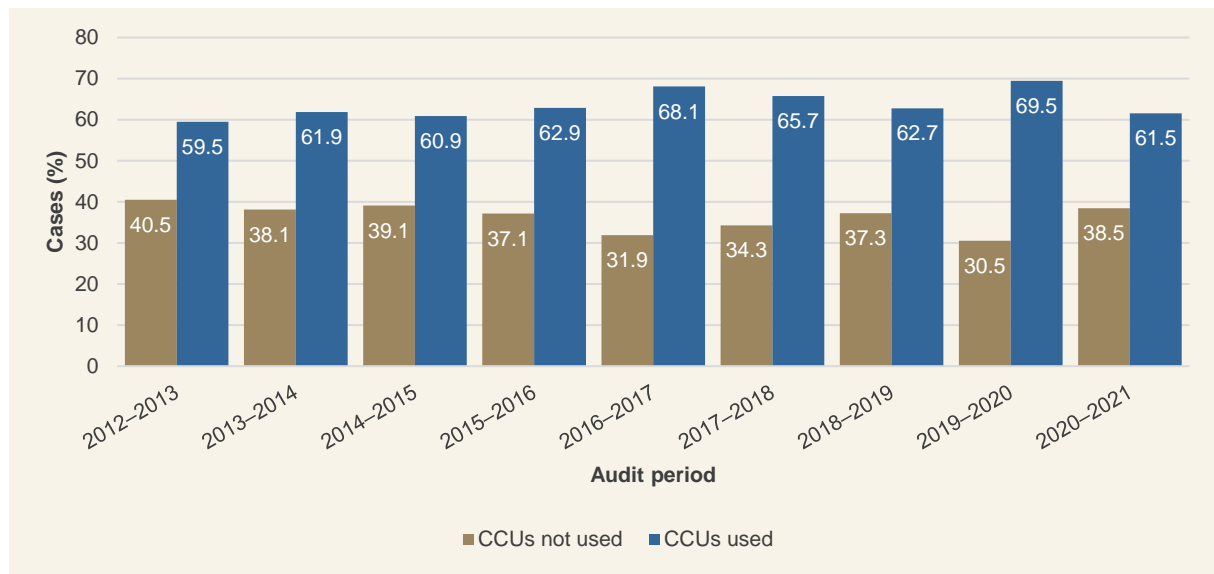
Tasmanian data were excluded from the national data pool for the comparison.

The choice to use DVT prophylaxis is subject to the judgement of clinicians caring for individual patients and is showing an increasing trend over the whole reporting period.

10.5 Adequacy of provision of critical care support to patients

The use of critical care units (CCUs), encompassing intensive care or high dependency units, is reported by consultant surgeons. Between 1 July 2012 and 30 June 2021, CCUs were utilised in 63.3% of cases (651/1,028) (Figure 9).

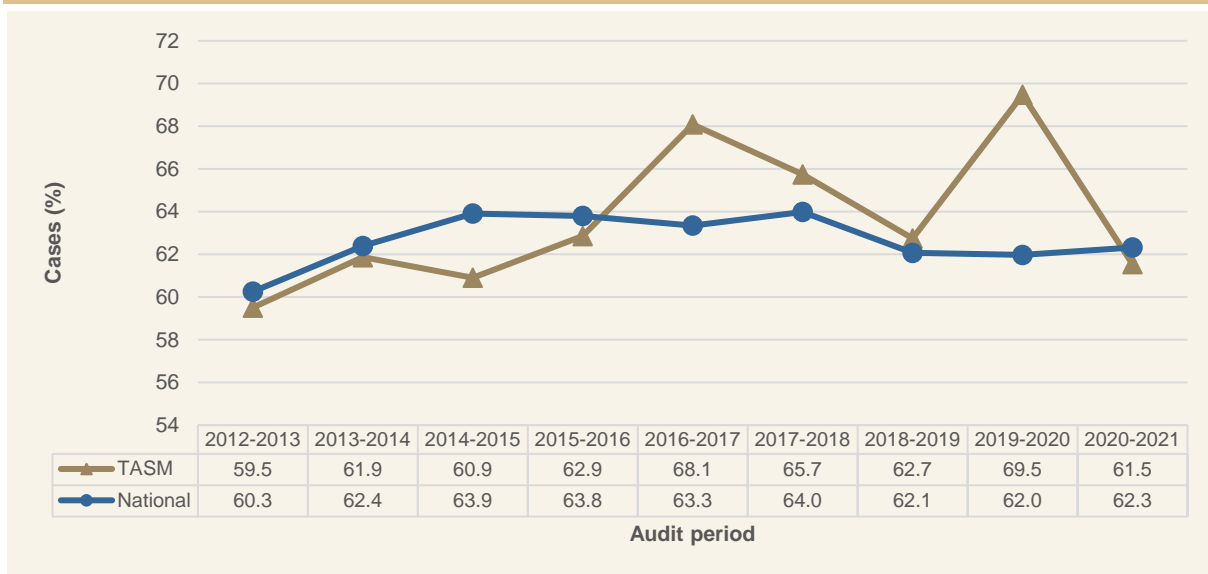
Figure 9: Critical care unit usage, 2012–2021



Treating surgeons are asked to record whether their patients received critical care support before or after surgery. First- and second-line assessors review the appropriateness of this CCU usage (Figure 10).

Assessors reported that over the period 2012–2021, 5.4% (20/372) of patients who did not receive critical care support were likely to have benefited from it. This number is higher than the number identified by the treating surgeon. The treating surgeon perceived that a lack of critical care support was potentially an issue in only 3.2% (12/377) of cases.

Figure 10: Deaths with the use of critical care support compared to national data, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

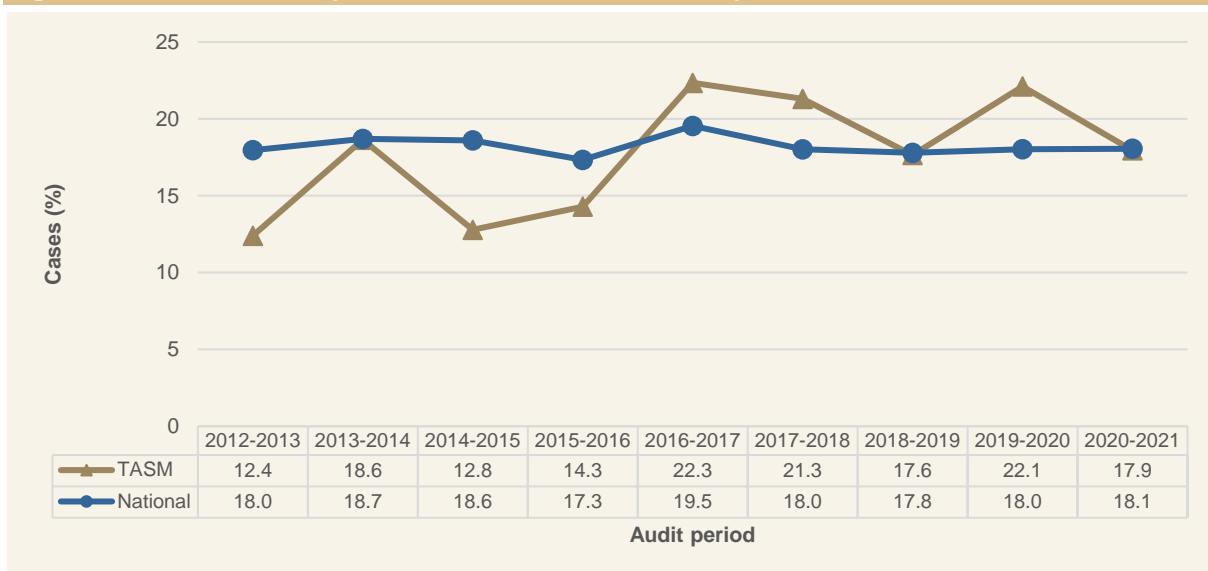
Notes

n = 651 out of 1,028 Tasmanian patients received critical care support from 1 July 2012 to 30 June 2021.

n = 18,832 out of 30,016 national patients received critical care support from 1 July 2012 to 30 June 2021; data unavailable: n = 214. Tasmanian data were excluded from the national data pool for the comparison.

Critical care management is an important area of clinical priority monitored by the audit. A seriously ill patient admitted to CCU unexpectedly, can indicate that the care being provided needs to be addressed. Figure 11 illustrates Tasmanian and national CCU management over time.

Figure 11: Deaths with unplanned admission to CCU compared to national data, 2012–2021



Abbreviations

CCU = critical care unit, **TASM** = Tasmanian Audit of Surgical Mortality

Notes

n = 178 out of 1,028 Tasmanian patients had an unplanned admission to CCU from 1 July 2012 to 30 June 2021.

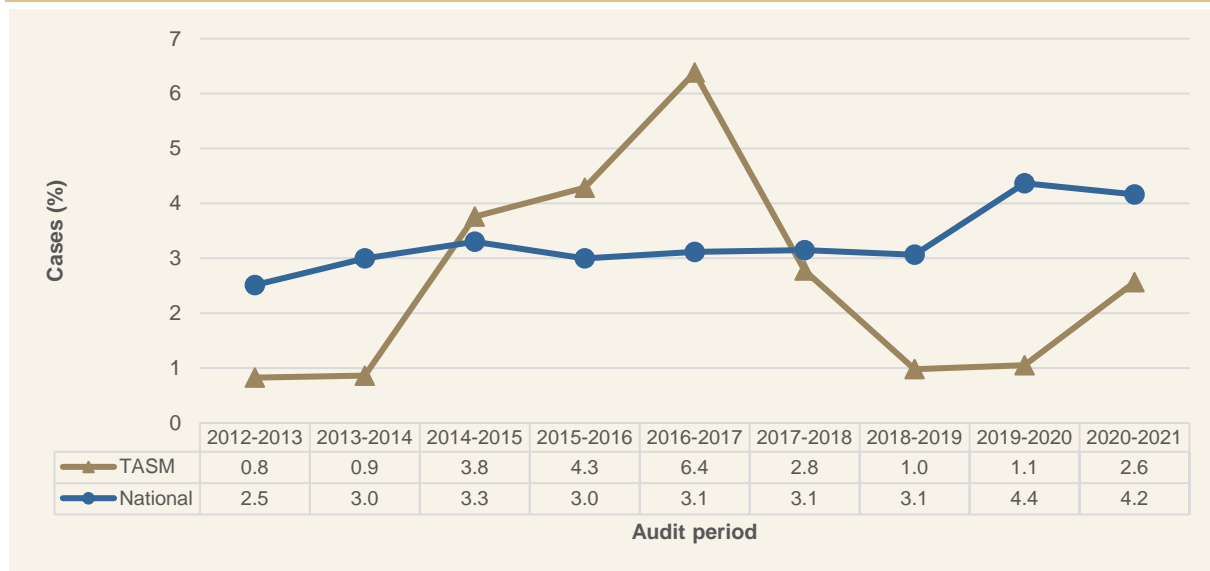
n = 5,402 out of 29,635 national patients had an unplanned admission to CCU from 1 July 2012 to 30 June 2021; data unavailable: n = 595.

Tasmanian data were excluded from the national data pool for the comparison.

10.6 Unplanned readmission to hospital

In 2020–2021, the rate of unplanned readmission to hospital increased to 2.6% (3/117) for Tasmanian patients. This is significantly lower than the national findings of 4.2% (114/2,738). TASM will continue to monitor rates of unplanned readmission and seek ways to reduce the rate of unplanned readmissions. This will contribute to better patient outcomes, such as increased quality of life, and more effective utilisation of limited health resources.

Figure 12: Deaths with unplanned readmission compared to national data, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

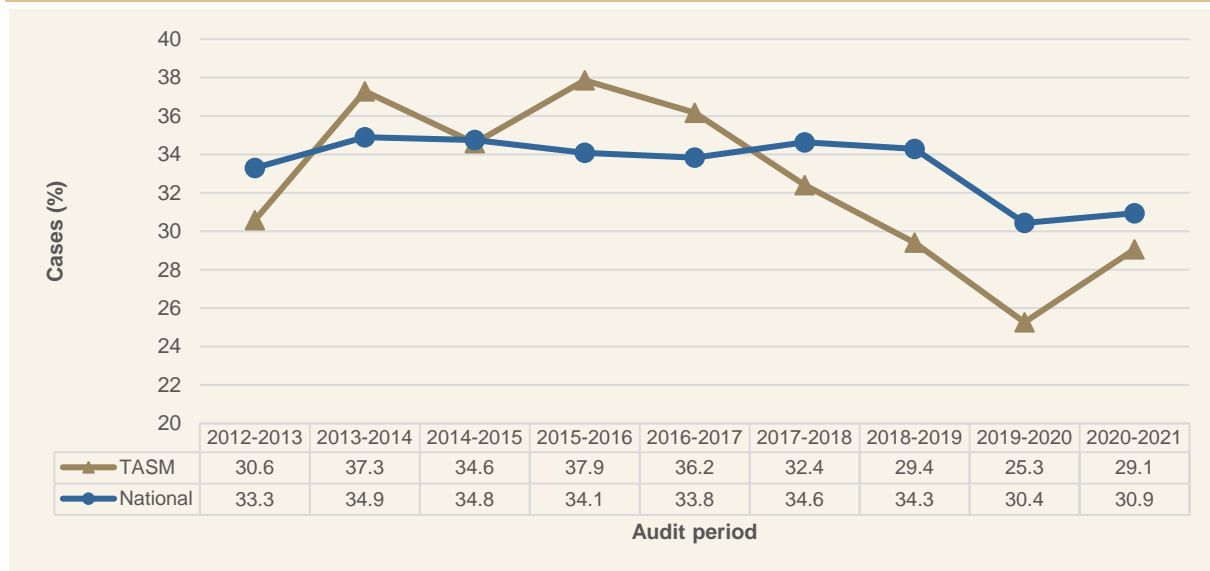
The graph shows significant fluctuations due to small numbers.

n = 27 out of 1,026 Tasmanian patients had an unplanned readmission from 1 July 2012 to 30 June 2021; data unavailable: n = 2.
 n = 970 out of 29,566 national patients had an unplanned readmission from 1 July 2012 to 30 June 2021; data unavailable: n = 664.
 Tasmanian data were excluded from the national data pool for the comparison.

10.7 Clinically significant infection

Surgeons are asked to report on specific aspects of clinical infection at the time of death (Figure 13).

Figure 13: Deaths with a clinically significant infection compared to national data, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

n = 337 out of 1,028 Tasmanian patients died with a clinically significant infection from 1 July 2012 to 30 June 2021.

n = 9,897 out of 29,491 national patients died with a clinically significant infection from 1 July 2012 to 30 June 2021; data unavailable: n = 739.

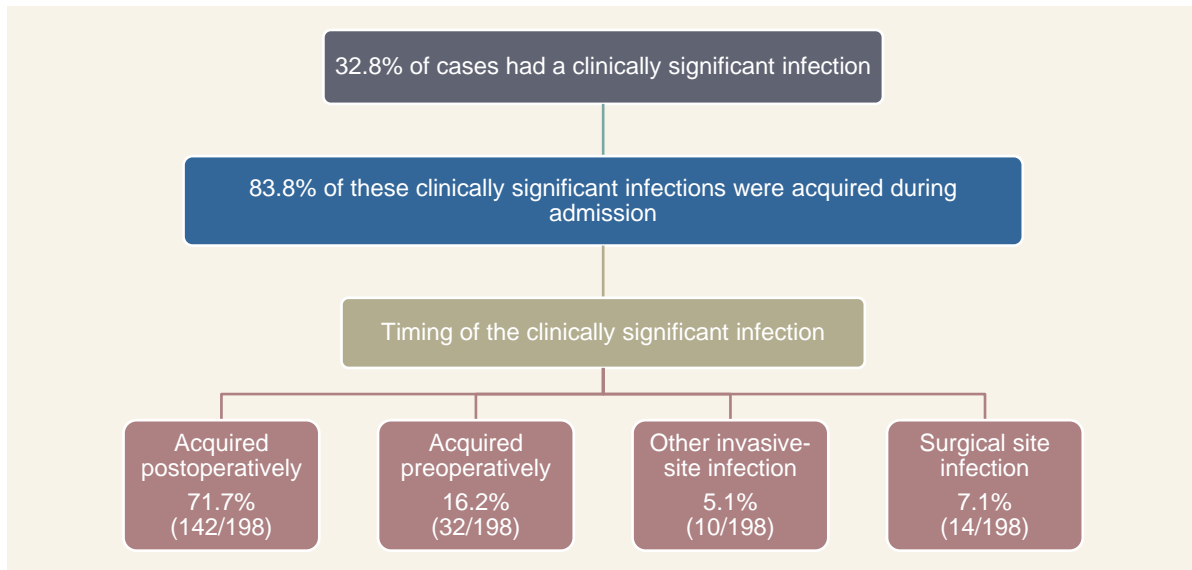
Tasmanian data were excluded from the national data pool for the comparison.

Between 2012 and 2021, 32.8% of Tasmanian patients (337/1,028) died with a clinically significant infection. Figure 14 shows the timing of when these infections were acquired.

Consultant surgeons reported that the clinically significant infection was acquired preoperatively in 16.2% of cases (32/198). In 83.8% of cases (166/198) the clinically significant infection was acquired during admission; most reported infections for the period 2012–2021 were acquired postoperatively (Figure 14). In Tasmania, this accounted for 71.7% (142/198) of infection cases, compared with 67.0% (3,542/5,284) nationally.

3. The average rate of surgical-site infections for patients in Tasmania for the period 2012–2021 was 7.1% (14/198); The period 2020-21 is lower than the average over the whole audit period at 4.5% (1/22) in the current audit period (2020–2021). The national findings are lower over the same period.⁹ 7.5% (397/5,284) to 6.2% (28/452).

Figure 14: Deaths with clinically significant infection acquired during admission, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

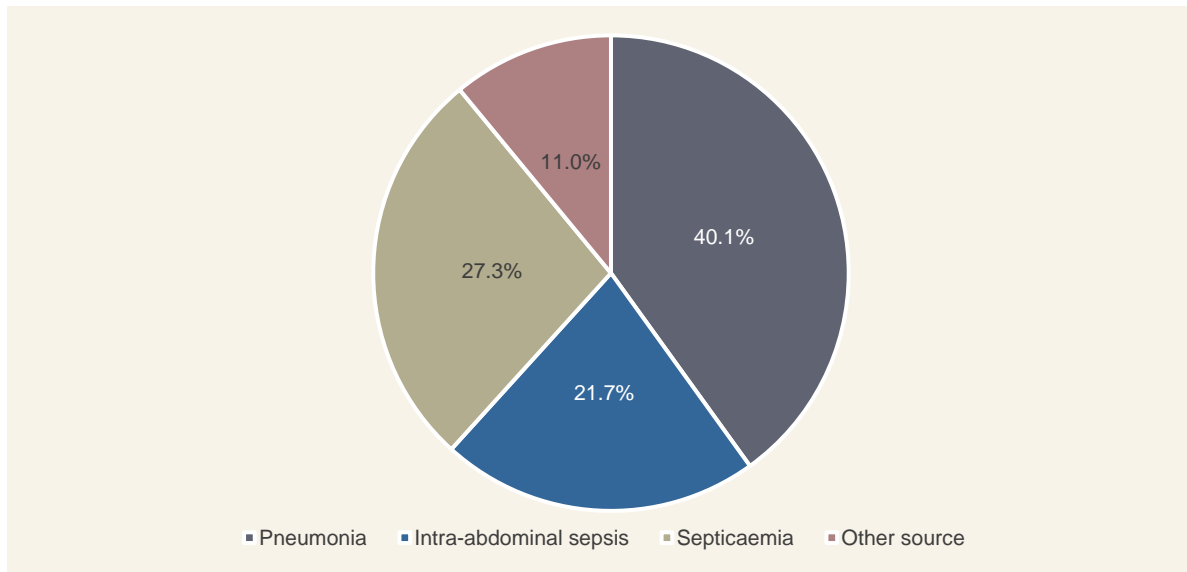
n = 337 out of 1,028 Tasmanian patients had a clinically significant infection from 1 July 2012 to 30 June 2021.

n = 9,897 out of 29,491 national patients had a clinically significant infection from 1 July 2012 to 30 June 2021; data unavailable: n = 739.

Tasmanian data were excluded from the national data pool for the comparison.

Strategies for reducing surgical-site infections have been implemented overseas and in Australia⁸ and guidelines should be followed. Antibiotic prophylaxis is an effective infection control measure in surgery and should be considered. The timeframe during which infection was acquired can play a role in patient recovery following surgical procedures.

Figure 15: Type of clinically significant infection reported, 2012–2021



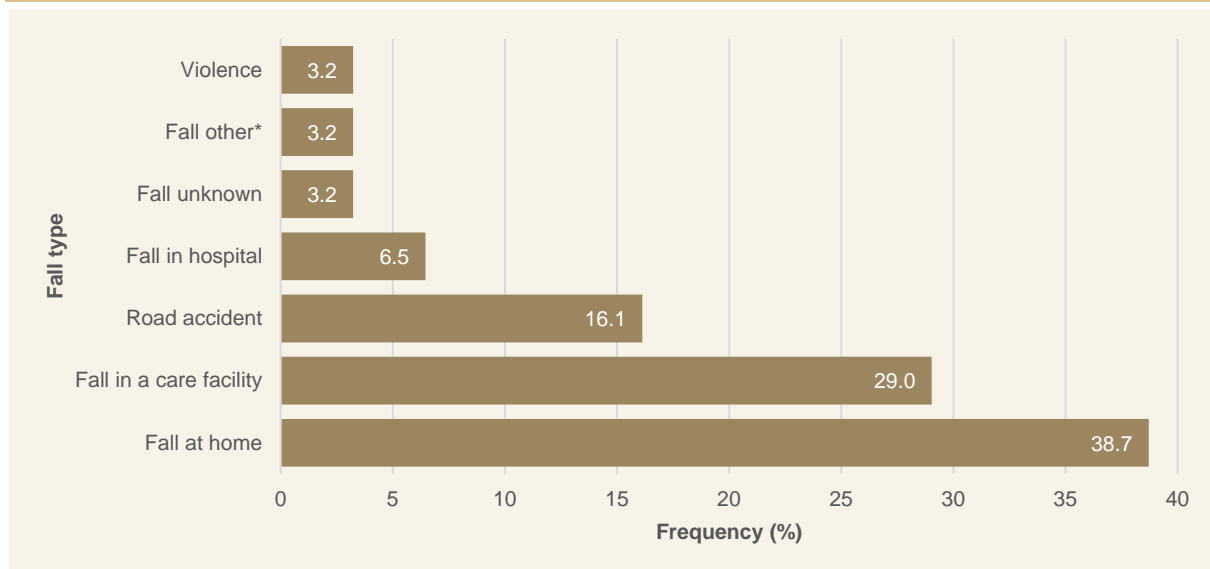
The infection rate varied across surgical specialties over the period 2012–2021, Plastic and Reconstructive Surgery had the highest reported infection rate at 60.0% (9/15) followed by Gynaecology at 50.0% (1/2), General Surgery (including trauma and colorectal subspecialties) at 41.2% (192/466), Urology at 39.3% (24/61) and Paediatric Surgery at 33.3% (1/3).

10.8 Trauma

Trauma cases are those in which a patient received severe bodily injury or shock from a fall, accident or violence. TASM began collecting data on trauma cases in 2015 to monitor trends and ensure strategies are implemented to prevent and minimise future harm. From 2015 to 2021, falls accounted for the majority (87.5%, 133/152) of trauma cases in Tasmania. Falls in hospital (3.9%, 6/152) should be preventable. TASM classifies these as an adverse event if related to a surgical patient’s death.

TASM will include strategies to improve fall prevention in its educational programs, especially focusing on falls in care facilities or hospitals.¹⁰ A reduction in postoperative falls for patients who participated in a preoperative education program has been shown.¹¹ Reviewing falls in trauma and orthopaedic cases can be a powerful tool to unite institutions to minimise risk and address issues

Figure 16: Deaths with causes of trauma, 2020–2021



Notes

n = 31 trauma cases among 117 Tasmanian patients from 1 July 2020 to 30 June 2021.

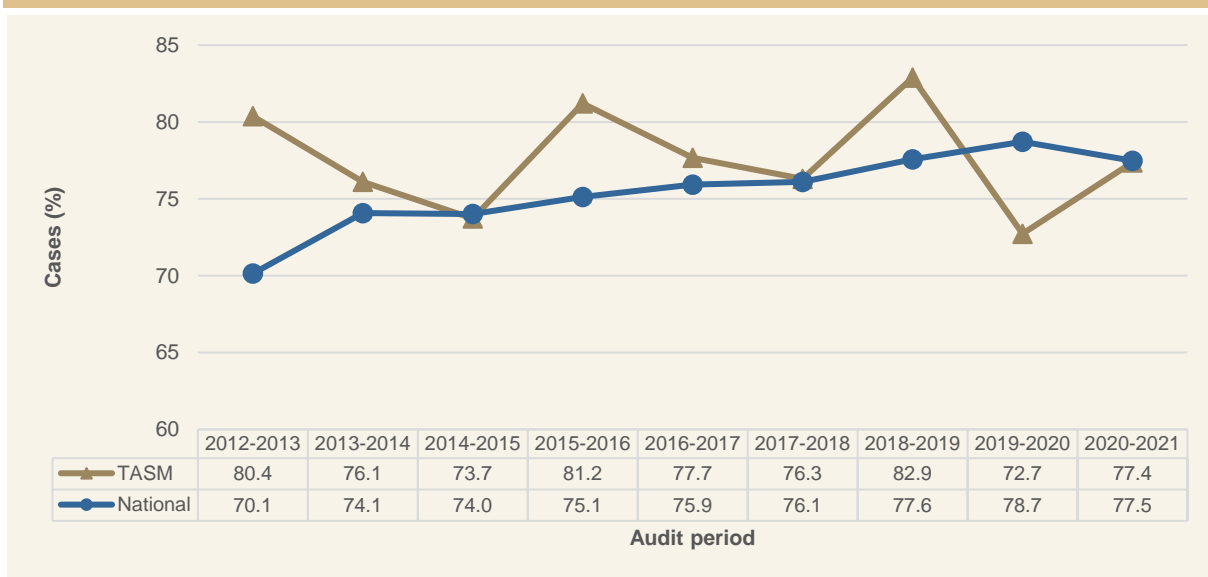
*Other patients had fall, but the surgeon did not include detail.

11. Profile of operative procedures

It is the role of the treating surgeon to take responsibility for the overall success of an operation. The treating surgeon must ensure that the operation proceeds smoothly with the lowest possible risk of complications, including appropriate use of DVT prophylaxis, antibiotics and CCU facilities; appropriate fluid balance; minimal unplanned returns to theatre; and appropriate involvement of the senior consultant, especially within a training environment.

Figure 17 shows the frequency of a consultant surgeon and gynaecologist being present in theatre or being the most senior surgeon performing the procedure.

Figure 17: Operation with consultant surgeon present in theatre compared to national data, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

n = 1,091 operative episodes for 1,028 operative Tasmanian patients from 1 July 2012 to 30 June 2021.

n = 34,292 operative episodes for 30,219 operative national patients from 1 July 2012 to 30 June 2021.

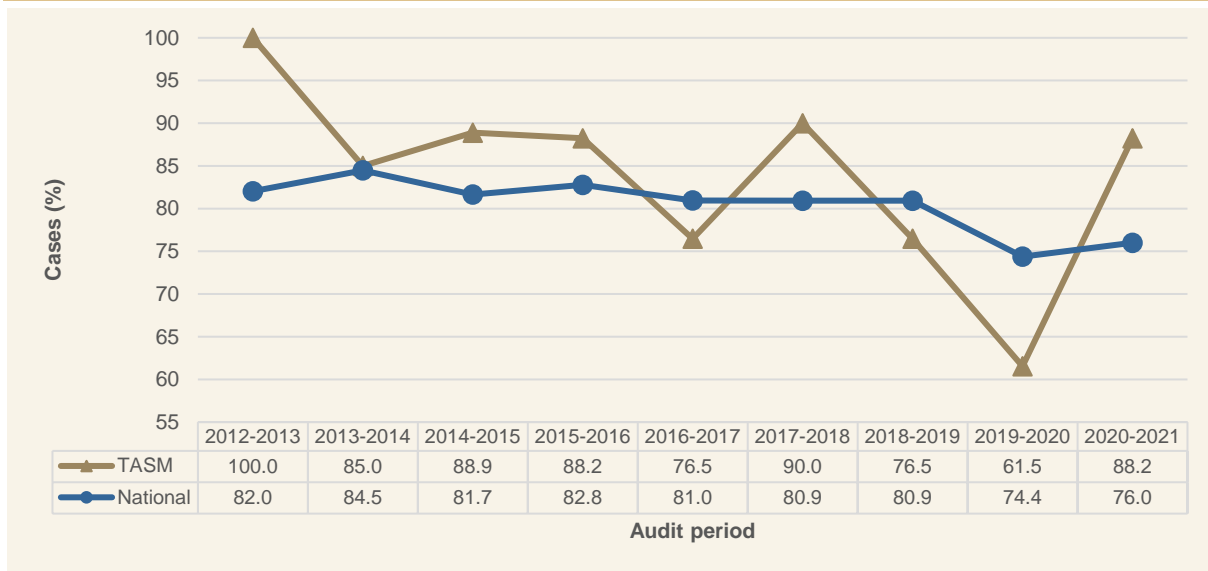
Tasmanian data were excluded from the national data pool for the comparison.

In the current audit period (2020–2021), 86.3% (101/117) of patients had at least one operative procedure.

The number of emergency admissions to a surgical unit for patients requiring an operation within 24 hours decreased from 67.2% (41/61) in 2019–2020 to 63.5% (54/85) in 2020–2021.

Elective surgery procedures are those scheduled in advance that do not involve an immediate medical emergency. In the current audit period (2020–2021), Tasmanian patients had elective surgery performed as planned in 88.2% (15/17) of cases, an increase from the previous year (61.5%; 8/13). This increase may be due to the resumption of elective surgery following the decline in COVID-19 cases.

Figure 18: Proportion of elective admissions with elective surgery performed, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

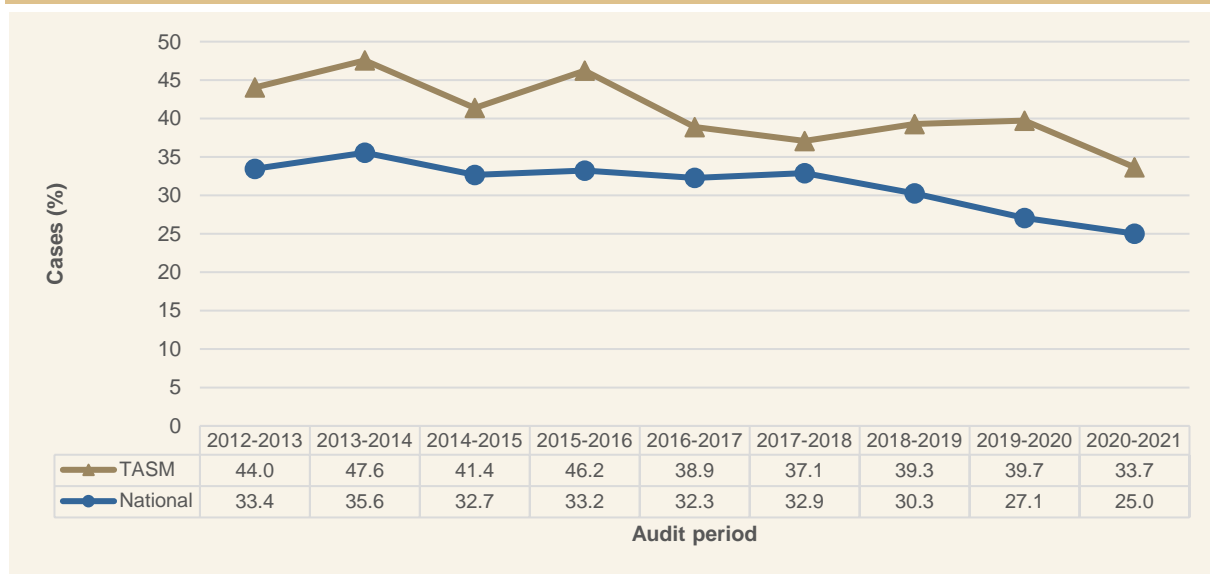
n = 130 out of 154 Tasmanian patients had an elective admission from 1 July 2012 to 30 June 2021; data unavailable: n = 24.
 n = 3,582 out of 4,440 national patients had an elective admission from 1 July 2012 to 30 June 2021; data unavailable: n = 858.
 Tasmanian data were excluded from the national data pool for the comparison.

11.1 Postoperative complications

Complications can occur following complex surgery due to pre-existing comorbidities, surgical risk status and the nature of the condition being treated. In the current audit period (2020–2021), 33.0% (34/101) of audited Tasmanian patients had complications, which is higher than the national rate in the same year (25.0%; 551/2,202).

Surgeons reported delays in recognising postoperative complications in 10.4% (33/316) of deaths over the period 2012–2021 (data unavailable: n = 2).

Figure 19: Operative deaths with postoperative complications compared to national data, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

n = 318 out of 778 Tasmanian patients had postoperative complications from 1 July 2012 to 30 June 2021.

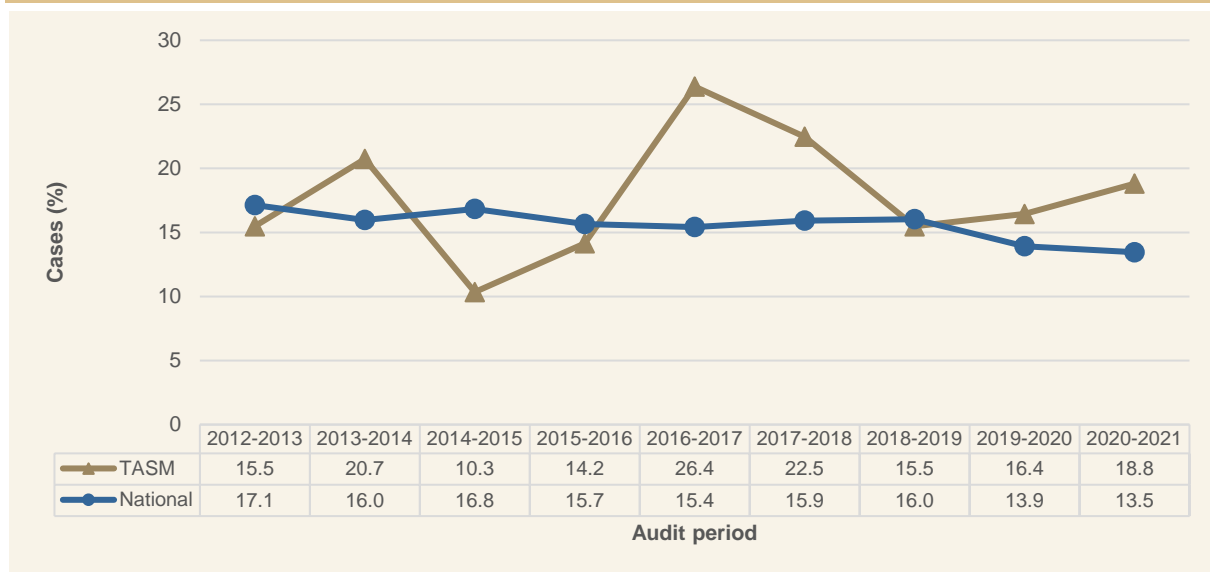
n = 7,632 out of 24,220 national patients had postoperative complications from 1 July 2012 to 30 June 2021; data unavailable: n = 256. Tasmanian data were excluded from the national data pool for the comparison.

11.2 Unplanned return to theatre

Some complications following complex surgery can be expected. A high rate of returns to theatre can reflect timely recognition, intervention and escalation of care for complications on the ward. However, it can also indicate that the care being provided could be improved. Figure 20 shows operative deaths following an unplanned return to theatre.

In the current audit period (2020–2021), surgeons reported a higher rate of returns to theatre (18.8%; 19/101) for patients in Tasmania, than that of 2019-2020 (16.4%; 12/73). The Tasmanian rate was also higher than the national rate in 2020-21 (13.5%; 299/2,222).

Figure 20: Operative deaths with unplanned return to theatre compared to national data, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

n = 137 out of 778 Tasmanian patients had an unplanned return to theatre from 1 July 2012 to 30 June 2021.

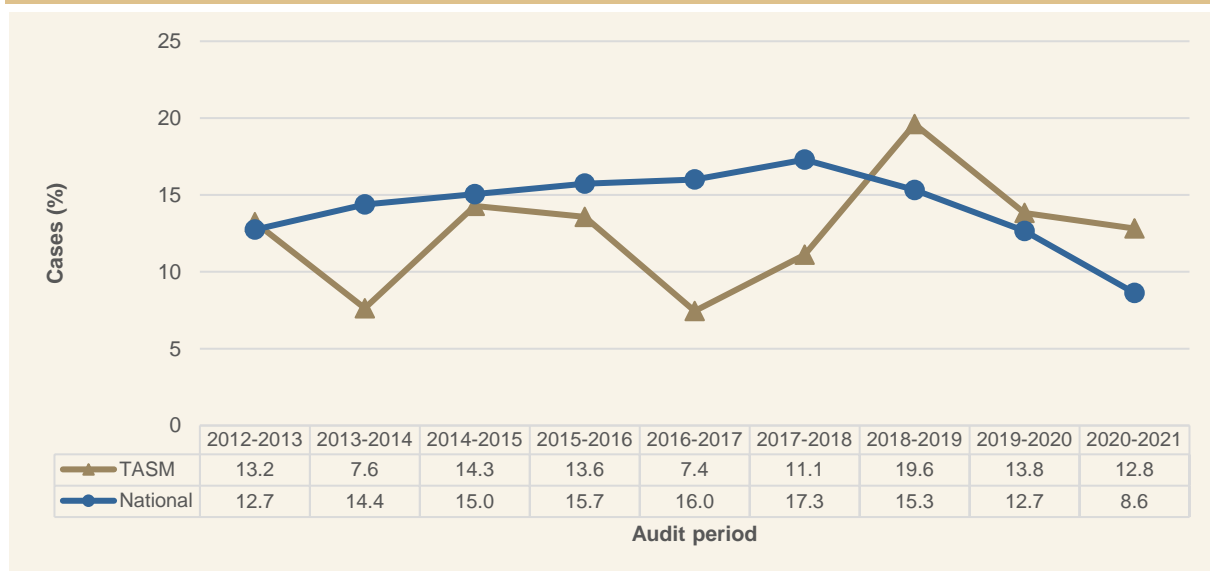
n = 3,791 out of 24,256 national patients had an unplanned return to theatre from 1 July 2012 to 30 June 2021; data unavailable: n = 220.

Tasmanian data were excluded from the national data pool for the comparison.

12. Peer-review process

FLAs were completed for 1,028 TASM cases during the complete audit period (2012–2021), with 12.6% (130/1,028) of those cases requiring an in-depth SLA (Figure 21).

Figure 21: Proportion of audited TASM deaths that underwent SLA compared to national data, 2012–2021



Abbreviations

SLA = second-line assessment, TASM = Tasmanian Audit of Surgical Mortality

Notes

n = 130 cases from 1,028 Tasmanian patients were referred for SLA peer review from 1 July 2012 to 30 June 2021.

n = 4,352 cases from 30,216 national patients were referred for SLA peer review from 1 July 2012 to 30 June 2021.

Tasmanian data were excluded from the national data pool for the comparison.

Each first-line assessor is asked to indicate whether the treating surgeon has provided sufficient information for a conclusion to be reached. If the information is deemed inadequate, an SLA is requested. SLAs are also requested if a more detailed case review is required. SLAs can provide clarification of events prior to death, for example, circumstances surrounding the unexpected death of a day surgery case or a young, fit patient with benign disease. Such scenarios may represent suspected issues of clinical management.

Information provided in SCFs has increased since audits began, but improvement is still needed. Reasons given for referral for SLA are provided in Table 4.

Table 4: Reasons for SLA referral, 2012–2021

Reason for SLA	TASM	National
SLA due to insufficient information	8.0% (82/1,028)	9.9% (2,998/30,216)
SLA due to further investigation	4.7% (48/1,028)	4.5% (1,347/30,216)
Sub total	12.7% (130/1,028)	14.4% (4,345/30,216)
SLA not required	87.4% (898/1,028)	85.6% (25,864/30,216)
Total	100.0% (1,028/1,028)	100.0% (30,209/30,216)

Abbreviations

SLA = second-line assessment, TASM = Tasmanian Audit of Surgical Mortality

Notes

n = 1,028 Tasmanian patients referred for SLA peer review from 1 July 2012 to 30 June 2021.

n = 30,216 national patients referred for SLA peer review from 1 July 2012 to 30 June 2021; data unavailable: n = 7.

Tasmanian data were excluded from the national data pool for the comparison.

At SLA, criticisms are also addressed for poor medical admission notes; missing reports; lack of/missing imaging, transfer notes or follow-up records; and unsatisfactory descriptions of the surgical procedure.

Comprehensive and legible hospital case notes are an important record of what has occurred during a patient's treatment. In the current audit period (2020–2021), of the TASM cases that required SLA, 73.3% (11/15) were sent due to insufficient information, an increase from 61.5% (8/13) in 2019–2020. During the current audit period, 26.7% (4/15) of SLA requests arose from the need for a more detailed review of perceived issues of management. In the current audit period, major CMIs were identified in 25.6% (30/117) of cases, the FLA assessor sought an SLA in these cases.

Greater attention to detail in completing the SCF helps reduce the workload of colleagues who have agreed to act as first- and second-line assessors.

13. Outcomes of the peer review

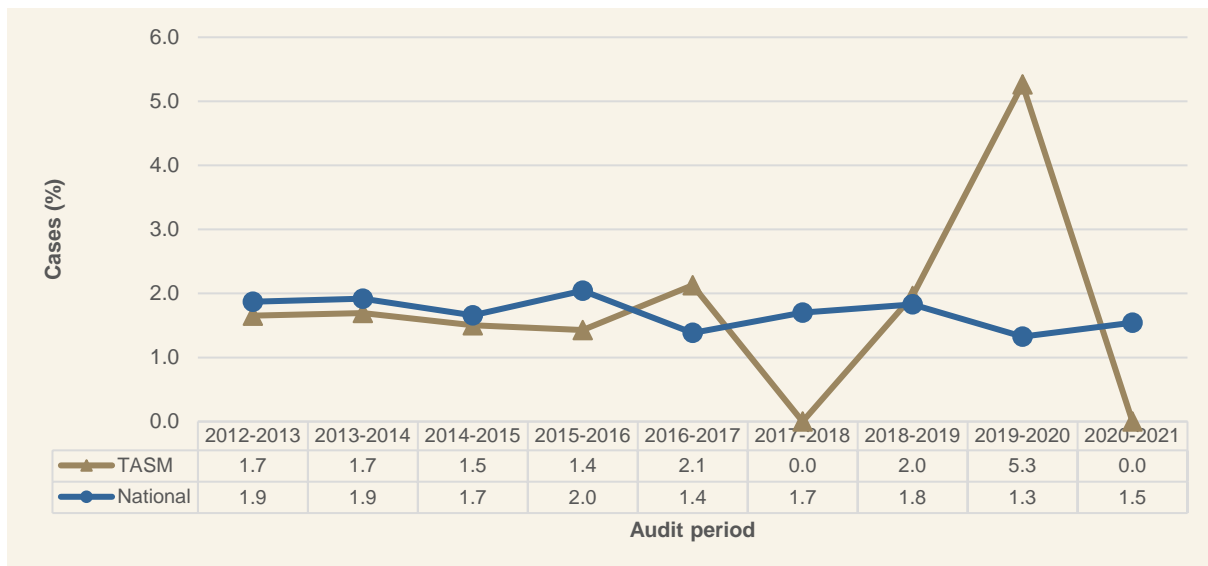
The TASM peer-review process is a retrospective examination of the clinical management of patients who died while under the care of a surgeon. All assessors must decide whether any aspects of patient management may have contributed to the outcome. In cases where it is thought that clinical management may have contributed to the death, TASM requires the assessor to attribute a level of severity, as outlined below:

- An area for consideration exists. The assessor believes an area of care **could** have been improved or done differently but recognises that this issue is debatable. It represents very minor criticism.
- An area of concern exists. The assessor believes that an area of care **should** have been better.
- An adverse event occurred. This is defined as an unintended injury or event **caused** by the medical management of the patient rather than by the disease process; the event was sufficiently serious to lead to prolonged hospitalisation or to temporary or permanent impairment or disability of the patient, or which directly contributed to or caused death.

13.1 Use of DVT prophylaxis

Assessors' perspectives on the appropriateness of DVT prophylaxis treatment is outlined in Figure 22. No cases (0.0%; 0/117) in the current audit period were found by assessors to have received inappropriate DVT prophylaxis, equivalent to the period 2017–2018.

Figure 22: Assessor perspective of inappropriate DVT prophylaxis, 2012–2021



Abbreviations

DVT = deep vein thrombosis, TASM = Tasmanian Audit of Surgical Mortality

Notes

n = 16 out of 1,028 operative Tasmanian patients associated with inappropriate DVT prophylaxis from 1 July 2012 to 30 June 2021.

n = 495 out of 29,096 operative national patients associated with inappropriate DVT prophylaxis from 1 July 2012 to 30 June 2021; data unavailable: n = 1,119.

Tasmanian data were excluded from the national data pool for the comparison.

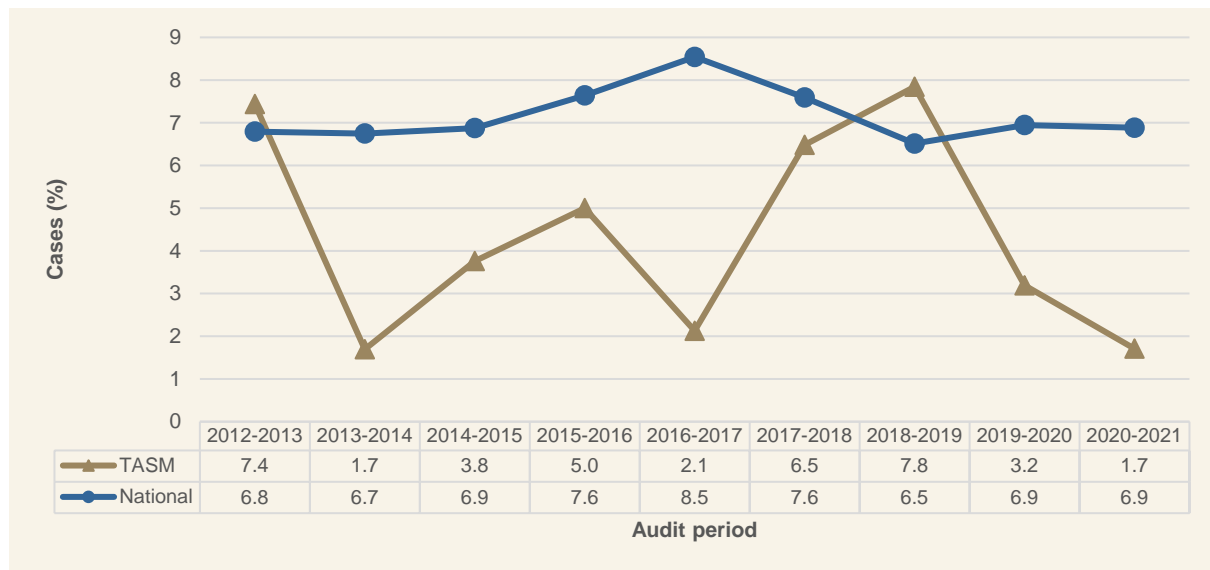
A decision by the treating team to actively withhold DVT prophylaxis from Tasmanian patients undergoing an operation decreased from 57.1% (4/7) in 2019–2020 to 29.4% (5/17) in 2020–2021. Tasmanian peer reviews indicate that assessors agreed with the use or non-use of DVT prophylaxis in 55.6% (65/117) of cases in 2020–2021, a decrease from 66.3% (63/95) in 2019–2020.

13.2 Issues with fluid balance

Treating surgeons and assessors were asked to comment on the appropriateness of fluid management strategies during the episode of care.

Figure 23 shows the proportion of patient deaths for which assessors believed fluid balance was an issue. In 2020–2021, assessors reported that 1.7% (2/117) of audited deaths in Tasmania had fluid balance issues.

Figure 23: Assessor perspective on fluid balance issues compared to national data, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

Notes

The graph shows significant fluctuations due to small numbers.
 n = 45 out of 1,028 Tasmanian patients were assessed to have fluid balance issues from 1 July 2012 to 30 June 2021.
 n = 2,097 out of 29,169 national patients were assessed to have fluid balance issues from 1 July 2012 to 30 June 2021; data unavailable: n = 1,046.
 Tasmanian data were excluded from the national data pool for the comparison.

13.3 CMIs

Patients may have more than one CMI associated with the care that ultimately led to their death. A weighting system categorises deficiencies in clinical care (Table 5).

Table 5: Severity of criticism of perceived CMIs

	Less severe ↔ Most severe			
Severity of clinical incident	None detected	Area of consideration	Area of concern	Adverse event
Outcome of incident	Not applicable	Did not affect clinical outcome	May have contributed to death	Probably contributed to death
Preventability of incident	Not applicable	Probably not	Probably	Definitely
Association of incident	Not applicable	Hospital	Clinical team	Surgical team

Audited cases may have multiple CMIs identified per patient. The percentage of patients affected is the important measure. Details of the issues identified are presented in Table 6.

The causes of CMI and associated trends are monitored closely by TASM and are the focus of reports and educational events.

For the current audit period (2020–2021), assessors perceived that CMIs occurred in 25.6% (30/117) of cases within the audited patient pool. Minor issues of patient management (area of consideration) were perceived to have occurred in 11.1% (13/117) of cases, areas of concern were identified in 10.3% (12/117) of cases, and 4.3% (5/117) of cases were categorised as an adverse event. Preventable adverse events or concerns increased from 10.5% (10/95) in 2019–2020 to 13.7% (16/117) in 2020–2021.

Table 6: perceived CMIs, 2012–2021

Audit period	No issue identified	Area of consideration	Area of concern	Adverse event	Preventable issue	Preventable adverse event or concern	Preventable adverse event or concern that contributed to death
2012–2013	72.7% (88/121)	16.5% (20/121)	4.1% (5/121)	5.0% (6/121)	16.5% (20/121)	5.8% (7/121)	1.7% (2/121)
2013–2014	76.3% (90/118)	13.6% (16/118)	3.4% (4/118)	4.2% (5/118)	11.0% (13/118)	5.1% (6/118)	1.7% (2/118)
2014–2015	73.7% (98/133)	12.8% (17/133)	6.8% (9/133)	6.8% (9/133)	18.0% (24/133)	11.3% (15/133)	3.0% (4/133)
2015–2016	75.0% (105/140)	12.1% (17/140)	7.9% (11/140)	5.0% (7/140)	18.6% (26/140)	10.7% (15/140)	2.9% (4/140)
2016–2017	74.5% (70/94)	13.8% (13/94)	7.4% (7/94)	4.3% (4/94)	16.0% (15/94)	8.5% (8/94)	2.1% (2/94)
2017–2018	76.9% (83/108)	11.1% (12/108)	6.5% (7/108)	5.6% (6/108)	16.7% (18/108)	9.3% (10/108)	2.8% (3/108)
2018–2019	67.6% (69/102)	11.8% (12/102)	7.8% (8/102)	11.8% (12/102)	22.5% (23/102)	16.7% (17/102)	5.9% (6/102)
2019–2020	78.9% (75/95)	9.5% (9/95)	7.4% (7/95)	4.2% (4/95)	16.8% (16/95)	10.5% (10/95)	1.1% (1/95)
2020–2021	73.5% (86/117)	11.1% (13/117)	10.3% (12/117)	4.3% (5/117)	18.8% (22/117)	13.7% (16/117)	3.4% (4/117)

Abbreviations

CMI = clinical management issue

14. Preventable CMIs

Table 7 lists the most severe CMIs (area of concern or adverse event) identified by assessors in 2020–2021 and opinions on their possible prevention.

Table 7: Preventable CMIS that contributed to death identified by highest level of assessment, 2020–2021

Admission phase	Assessor review of adverse event
Preoperative	Why the decision to perform the initial gastroscopy? Gastroscopy is not indicated for investigation of a positive faecal occult blood test, which seems to be the main indication for admission. Did the patient have upper GI symptoms? Specifically, did the patient have upper GI symptoms?
Postoperative	Despite psychiatric referral, deemed not to be safe for discharge, system failed, and patient then committed suicide in care of hospital.
Pre- and intraoperative	Planning and performance issue by operating surgeon causing prolonged cardiopulmonary bypass followed by bleeding, which resulted in adverse outcome.
Intraoperative	Intraoperative rupture of pulmonary artery

Abbreviations

CMI = clinical management issue

14.1 Scope for improved management of surgical care

Table 8 shows the point of surgical care at which assessors considered that management could have been improved.

In past audit periods, management issues regarding the decision to operate, preoperative management/preparation, choice of operation, timing of operation, intraoperative/technical management of surgery and postoperative care considerations in Tasmania have been similar to the national figures. However, in the current year (2020–2021) Tasmanian figures are higher in most areas relative to the national data.

Table 8: Areas for surgical care improvements as identified by assessors at different phases of care, 2020–2021

Area for improvement	TASM	National
Preoperative management/preparation	6.8%	7.0%
Decision to operate at all	10.3%	6.3%
Choice of operation	6.0%	3.7%
Timing of operation (too late, too soon, wrong time of day)	8.5%	4.4%
Intraoperative/technical management of surgery	3.4%	3.3%
Grade/experience of surgeon deciding	0.0%	0.8%
Grade/experience of surgeon operating	0.0%	1.0%
Postoperative care	4.3%	3.5%

Notes

Audit period 1 July 2020 to 30 June 2021.

Tasmanian data were excluded from the national data pool for the comparison.

Identifying areas for surgical care improvement allows for better understanding of improving surgical care in Tasmania and nationally. To encourage improvement, TASM actively disseminates problems identified from the data to clinicians and healthcare services via educational events, hospital forums, committee meetings, individual feedback letters to the treating surgeon, hospital governance reports, scientific articles and newsletters.

14.2 TASM and national trends in CMI areas

TASM outcomes and national trends in CMIs can be a catalyst for clinical governance management in surgical health services as per the NSQHS Standards. Tasmanian findings regarding CMIs are compared with the national data (Table 9). Over the 2012–2021 period, Tasmanian consultant surgeons were present for 77.6% (847/1,091) of operations compared with 75.5% (25,885/34,292) of operations nationally.

Table 9: Clinical management comparisons between TASM and national data, 2020–2021

Variable	TASM	National
Audited deaths with delay in surgical diagnosis	6.0% (7/117)	5.2% (143/2,744)
Audited deaths with delay in transfer	6.7% (2/30)	9.8% (64/653)
Audited deaths without use of ICU or HDU	61.5% (72/117)	62.3% (1,710/2,744)
Audited deaths with unplanned admission to ICU	17.9% (21/117)	18.1% (495/2,742)
Audited deaths with unplanned readmission	2.6% (3/117)	4.2% (114/2,738)
Audited deaths with a clinically significant infection	29.1% (34/117)	30.9% (849/2,744)
Operation with consultant surgeon present in theatre	77.4% (106/137)	77.5% (2,332/3,010)
Proportion of elective admissions with elective surgery performed	88.2% (15/17)	76.0% (266/350)
Audited operative deaths with postoperative complications	33.7% (34/101)	25.0% (551/2,202)
Audited operative deaths with unplanned return to theatre	18.8% (19/101)	13.5% (299/2,222)
Inappropriate DVT prophylaxis treatment as viewed by assessor	0.0% (0/117)	1.5% (41/2,658)
Audited deaths with fluid balance issues as viewed by assessor	1.7% (2/117)	6.9% (183/2,658)

Abbreviations

DVT = deep vein thrombosis, HDU = high dependency unit, ICU = intensive care unit, TASM = Tasmanian Audit of Surgical Mortality

Notes

Audit period 1 July 2020 to 30 June 2021.

Denominator varies due to different criteria for each row.

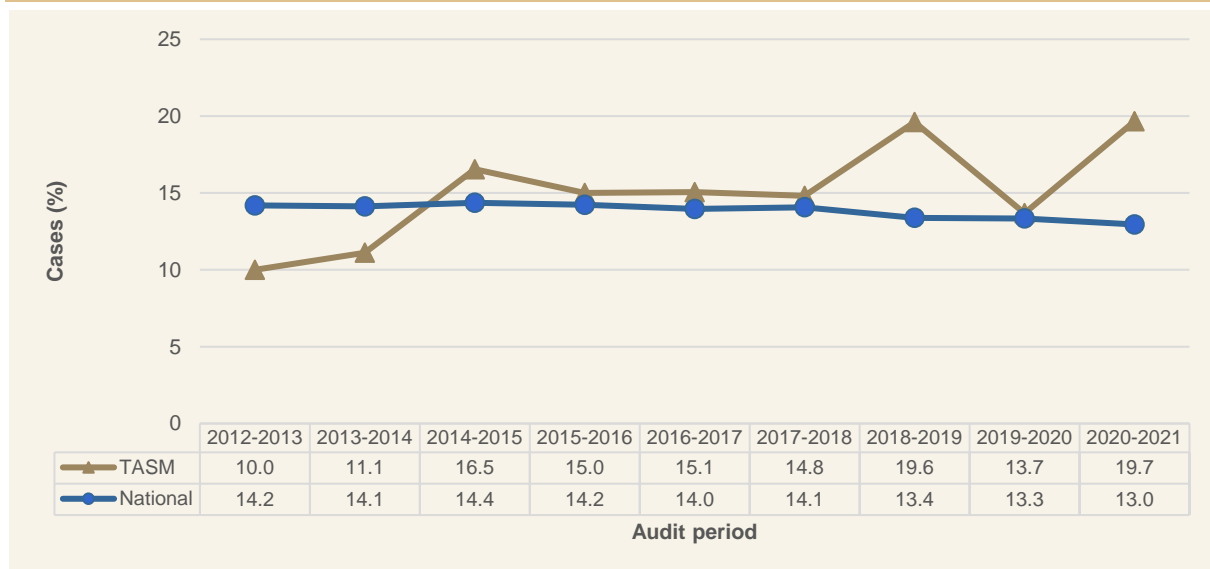
Tasmanian data were excluded from the national data pool for the comparison.

15. Postmortem

Frequency of postmortem examinations, when cause of death is undetermined, were 15.0% of all cases (154/1,025) compared to 13.9% (4,094/29,527) nationally in the period 2012–2021.

Postmortems are deemed to provide educational information and valuable insights.

Figure 24: Postmortems performed in Tasmania compared to national data, 2012–2021



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

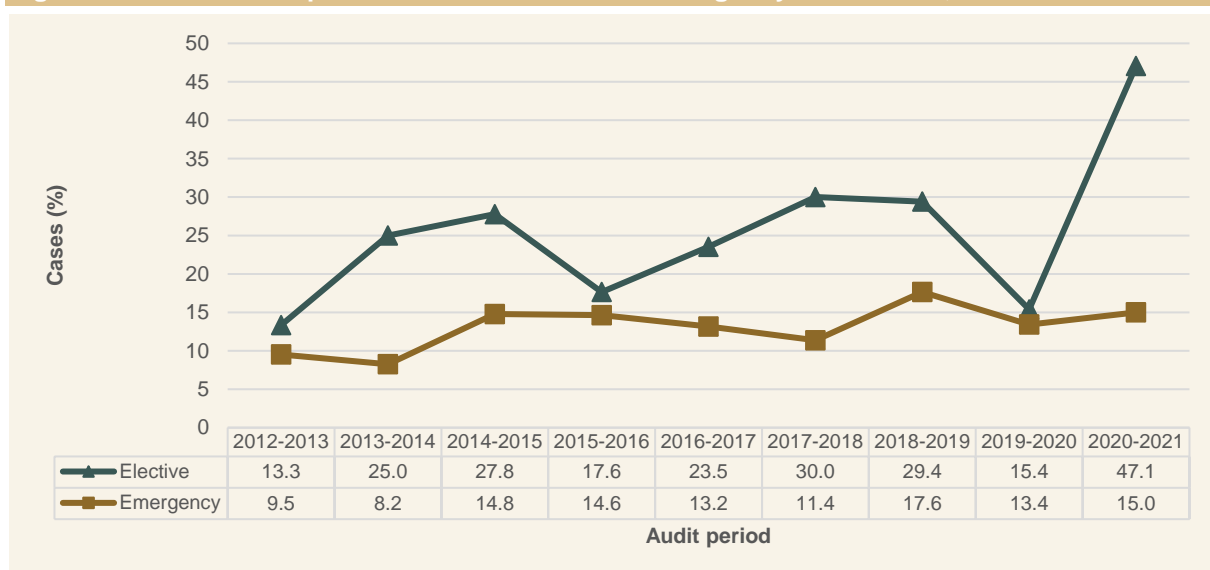
Notes

n = 154 of 1,025 Tasmanian patients had a postmortem from 1 July 2012 to 30 June 2021; data unavailable: n = 3.

n = 4,094 of 29,527 national patients had a postmortem from 1 July 2012 to 30 June 2021; data unavailable: n = 703.

Tasmanian data were excluded from the national data pool for the comparison.

Figure 25: Postmortem performed for elective and emergency admissions, 2012–2021



Notes

The graph shows significant fluctuations due to small numbers.

n = 40 and 114 of 1,025 postmortems performed for elective and emergency admissions, respectively, from 1 July 2012 to 30 June 2021; data unavailable: n = 3.

16. Conclusion

In this report, TASM has demonstrated trends in CMIs related to surgical deaths over the past 9 years of the audit. There has been a small increase in the number of preventable CMIs recorded. The identified issues highlight ongoing opportunities for system-wide improvements.

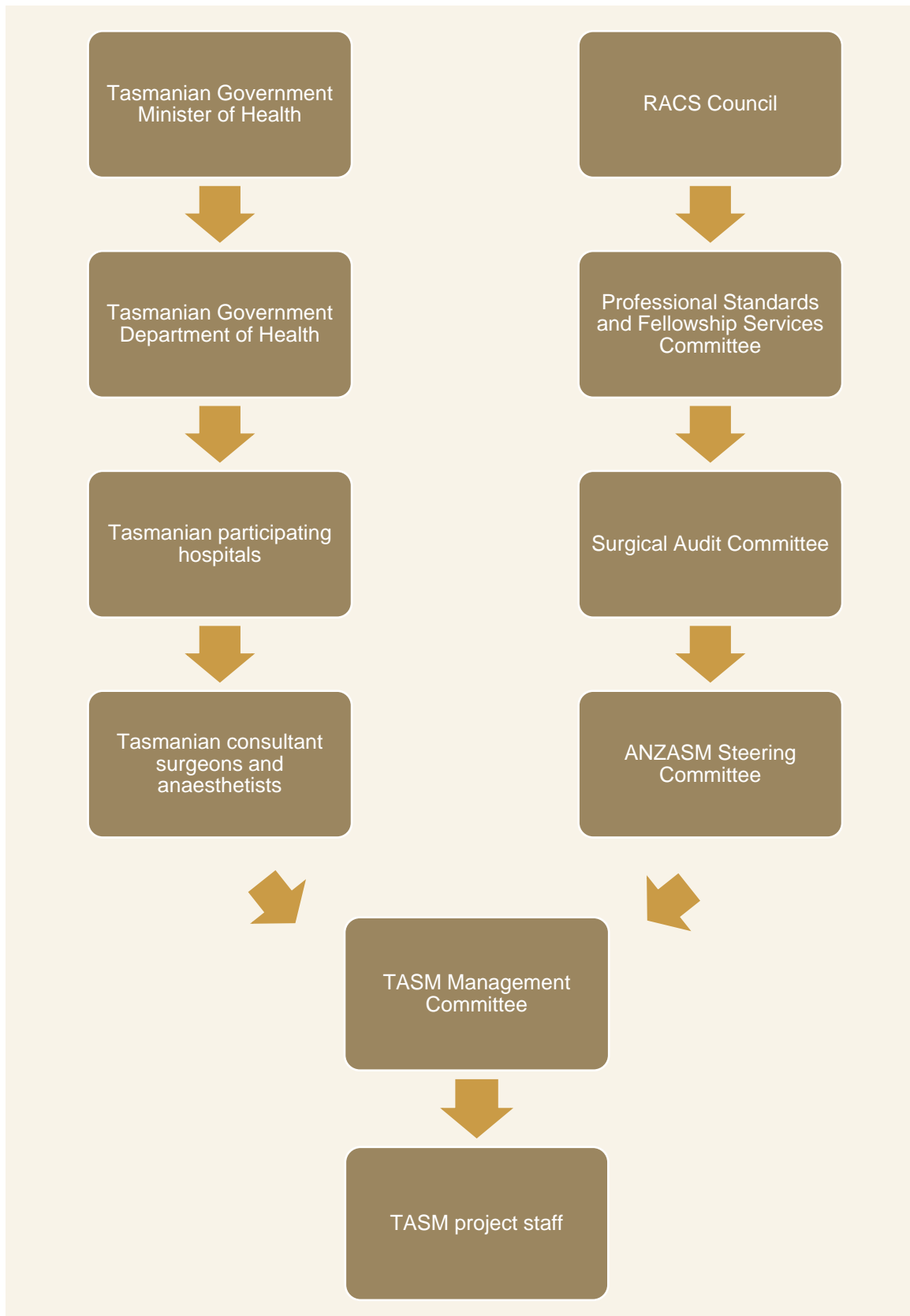
TASM continues to emphasise the importance of clinical leadership in providing a clear patient management pathway and treatment plans that are understood by all those involved in a patient's care. Multidisciplinary collaboration should not be delayed: good communication is vital to improving patient management. This includes the need for detailed handovers and ensuring adequate documentation is maintained in the patient healthcare record.

TASM, together with the support of Tasmanian hospitals, will continue to monitor preventable CMIs, along with postoperative transfers involving surgery, as a helpful measure for ensuring the highest standards of safe and comprehensive surgical care in Tasmania.

17. References

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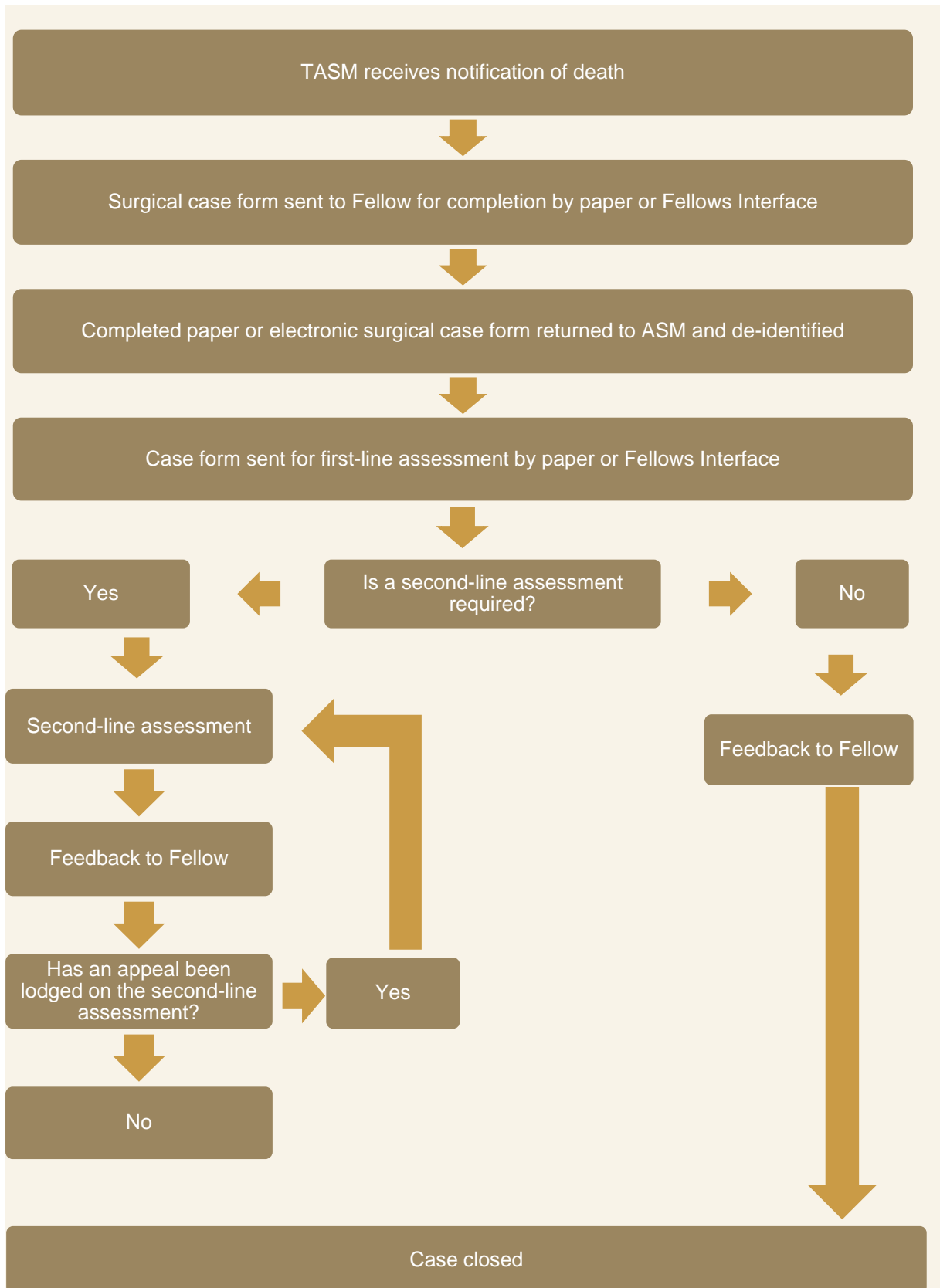
18. Appendix A: TASM governance structure



Abbreviations

RACS = Royal Australasian College of Surgeons, ANZASM = Australian and New Zealand Audit of Surgical Mortality, TASM = Tasmanian Audit of Surgical Mortality

19. Appendix B: TASM audit process



Abbreviations

TASM = Tasmanian Audit of Surgical Mortality

