



ANNUAL REPORT 2021

IMPROVING CARE, BEFORE, DURING AND AFTER SURGERY

ACRONYMS

ACSQHC – Australian Commission on Safety and Quality in Health Care

ANZCA – Australian and New Zealand College of Anaesthetists

ANZELA-QI – Australian and New Zealand Emergency Laparotomy Audit – Quality Improvement

ANZHFR – Australian and New Zealand Hip Fracture Registry

ASC – Anaesthetic Subcommittee

CCS – clinical care standards

CT – computed tomography

DAA – Difficult Airway Alert

DVT – deep vein thrombosis

DH – Department of Health

EL – emergency laparotomy

HAC – hospital acquired complication

ICU – intensive care unit

KPI – Key performance indicators

M&M – Morbidity and mortality

MET – Medical Emergency Team

NELA – National Emergency Laparotomy Audit

OSA – obstructive sleep apnoea

PACU – post-anaesthesia recovery unit

PCR – polymerase chain reaction

PMC – Perioperative Mortality Committee

PPE – personal protective equipment

RACS – Royal Australasian College of Surgeons

SCV – Safer Care Victoria

URTT – unplanned return to theatre

VAED – Victorian Admitted Episodes Database

VAHI – Victorian Agency for Health Information

VASM – Victorian Audit of Surgical Mortality

VCCAMM – Victorian Consultative Council of Anaesthetic Mortality and Morbidity

VIFM – Victorian Institute of Forensic Medicine

VMIA – Victorian Managed Insurance Authority

VPCC – Victorian Perioperative Consultative Council

VSCC – Victorian Surgical Consultative Council

Victorian Perioperative Consultative Council
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ABOUT THE VICTORIAN PERIOPERATIVE CONSULTATIVE COUNCIL

The Victorian Perioperative Consultative Council (VPCC) reviews and monitors perioperative care in Victoria to improve outcomes for patients before, during and after surgery.

ABOUT US

VPCC was established as a multidisciplinary council in 2019 to build upon the work of the former Victorian Consultative Council of Anaesthetic Mortality and Morbidity (VCCAMM) and the Victorian Surgical Consultative Council (VSCC). The VPCC membership includes experts with a surgical, anaesthetic, nursing, consumer or medical background, who contribute a diversity of expertise, perspective and lived experience to the Council agenda and deliberations.

VPCC identifies improvement opportunities in perioperative care and shares these with the health sector for the benefit of patients, their families, and the wider health care community.

The first VPCC meeting was held in December 2019, shortly before the COVID-19 pandemic which has presented major challenges to the health sector and society more widely.

VPCC has been in a unique position during the pandemic to monitor and understand the issues that have affected and will continue to affect the perioperative sector over the next two to three years.

Safer Care Victoria (SCV) supports VPCC in its functions through, but not limited to, provision of secretariat support, data analysis, communication and publication.

REPORTING

VPCC reports to the Minister for Health. It aims to improve perioperative care through engaging with clinicians and health services, SCV, the Department of Health (DH), the Victorian Agency for Healthcare Information (VAHI), the Victorian Audit of Surgical Mortality (VASM) and Clinical Quality Registries.

Case reviews inform the lessons learned and identify emerging safety themes. The analysis of cases is performed by the subcommittees, which also have multidisciplinary and consumer membership. Timely reporting of mortality and morbidity to VPCC enables it to carry out its functions effectively.

Health services and clinicians can report perioperative morbidity and mortality to VPCC online, via the website or via the VPCC e-form.

GOVERNING LEGISLATION

VPCC operates in accordance with Sections 33–43 of the *Public Health and Wellbeing Act 2008* (the Act). Any discussions involving the identity of patients, clinicians or health services are protected under Victorian legislation.

- Under Section 39 of the Act, the Chairperson of a consultative council may request general or specific information from a Victorian health service provider or pathology service which the Chairperson considers is necessary to enable the council to perform its functions.
- Section 40 of the Act requires that the health service provider must provide such requested information.
- Section 41 of the Act outlines the circumstances in which information can be disclosed by the council.
- Sections 42 and 43 of the Act describe the confidentiality obligations that apply to the council.

MEMBERSHIP

Members of the council are appointed by the Minister for Health for a three-year term and may serve multiple terms if re-nominated and subsequently reappointed.

The formation of subcommittees by the council is subject to the approval of the minister while membership is determined by the council.

The council may hold workshops, form working groups and commission other activities, as necessary. Full details of the members of VPCC and its subcommittees are included in **Appendix 1**.

CHAIR'S REPORT

The VPCC held all four scheduled Council and subcommittee meetings virtually in 2021. We worked closely with Safer Care Victoria, the Department of Health, the Surgical and Anaesthesia Directors, the Royal Australian College of Surgeons (RACS) and Australian and New Zealand College of Anaesthetists (ANZCA) on perioperative issues that affected services in Victoria during 2020. We also held two workshops on unplanned returns to theatre and patient transfers. The VPCC has identified several focus areas for improvement before, during and after surgery.

UNPLANNED RETURN TO THEATRE (URTT)

URTT for a complication of surgery is a hospital acquired complication (HAC)¹. VPCC held a workshop on URTT bringing together VAHI, Australian Commission on Safety and Quality in Health Care (ACSQHC), rural health services and surgical directors. VPCC is also working with VAHI to improve the identification of true URTT to enable reporting of these events and 'failure to rescue' rates.

Patients who deteriorate due to a complication of surgery require prompt and urgent intervention, which may unfortunately require an unplanned further operation. While disappointing for the patient, their family and the treating team, it is important, in terms of safety and quality, that URTTs are performed in a timely manner to limit the impact of any complication on the patient and maximise their chances of recovery. Approximately 95% of patients experiencing a URTT in Victoria are likely to be successfully rescued from information presented at the workshop, however the risk of mortality rises with patient age, comorbidities, frailty and number of complications experienced as well as the nature of the condition and urgency of the surgical procedure originally performed.²

PATIENT TRANSFERS

Patient transfers from one health service or hospital to another for escalation of care are an important part of the Victorian health system. Transfers enable a patient to be treated in a better resourced hospital when their condition requires it.

Transfers need to be timely and depend on good communication and cooperation between the sending and receiving hospitals. They carry some risk to patients, particularly when the transfer decision is delayed or the duration of transfer is prolonged. VPCC promotes good transfer behaviour and communication (see Surgical subcommittee report on page 22).

OTHER PRIORITIES OF VPCC

- **Promoting standards for perioperative peer review and Morbidity and Mortality meetings in health services**, including ensuring effective flow of information with clinical governance committees and boards. A project with Victorian Managed Insurance Authority (VMIA) will address rural and regional perioperative morbidity and mortality in 2022.
- **Ensuring perioperative cardiovascular events (pulmonary embolism, stroke and heart attacks) are identified and reviewed at the health service level**, so that any lessons for improvement can be implemented.
- **Promoting engagement by health services in clinical quality registries**. These include the Australian and New Zealand Emergency Laparotomy Audit – Quality Improvement (ANZELA-QI) and the Australian and New Zealand Hip Fracture Registry (ANZHFR), the most common causes of perioperative mortality in Australia and New Zealand. Our surgical subcommittee Chair, Wendy Brown, was lead author on a paper reviewing the need for urgent reform to facilitate engagement with clinical registries³.



Professor David Watters AM OBE

Chair, Victorian Perioperative
Consultative Council

TIMELY RESPONSE TO A COMPLICATION OF SURGERY REQUIRING AN UNPLANNED RETURN TO THEATRE

A middle-aged patient with colorectal cancer required an elective category 1 (urgent, needing treatment within 30 days) bowel resection. She also suffered from rheumatoid arthritis and was being treated with methotrexate to control the disease. An ex-smoker, she had mild chronic obstructive airways disease. She was understandably keen to avoid a stoma bag (a colostomy or ileostomy).

At the initial operation after removing the section of bowel with the cancer, the surgeon was able to perform an anastomosis (joining the two ends of bowel) which had a good blood supply and a negative leak test. Four days after the operation, her inflammatory markers (C-Reactive Protein - CRP) were still high, and she had developed a paralytic ileus (her bowels were not working).

The patient had a MET (medical emergency team) call on the ward and an urgent CT (computed tomography) scan was ordered, which suggested an abnormal amount of peri-anastomotic gas and fluid. Her NELA (National Emergency Laparotomy Audit) score was six per cent (mortality risk).

She had an urgent (two–six hours) unplanned return to theatre that evening where an anastomotic leak was confirmed, the anastomosis was taken down and an end colostomy was performed. She spent 48 hours in the ICU (Intensive Care Unit) during the postoperative period with some inotropic support for her systemic sepsis.



The extra abdominal procedure, while disappointing and unfortunate, saved her life and she was discharged home 10 days later to recover from her surgery. The stoma was able to be reversed eight months later, following a two month delay due to COVID-19 elective surgery restrictions. This procedure was uneventful.

Lesson

Anastomotic leaks are a risk with colorectal surgery, occurring in two to five per cent of cases, but are more likely in patients with comorbidities. This patient did have a higher risk of anastomotic leak, which can happen to any patient undergoing large bowel surgery. The leak was promptly recognised and investigated, and she was returned to theatre in time to save her from what was likely to become a life-threatening infection because of the leak. The unplanned return to the operating theatre saved her life.

PROJECTS AND OUTPUTS

VPCC worked on several key projects throughout 2021 to improve perioperative care in Victoria.

BEST CARE

VPCC will again partner with SCV to develop Best Care guidance. *Best Care: Guidance for non-urgent elective surgery* was introduced following the suspension of all elective surgery during the first wave of the pandemic in Victoria.

Three conditions and their management will be chosen for review, the first of which is the management of prostate cancer and when best to use radiotherapy. Two other procedures are being finalised.

BEST PLACE PROJECT

The *Best place project* supports the findings of *Targeting Zero*⁴ by developing clinical guidance, advice and direction for health services to ensure complex or highly specialised procedures are performed in facilities with the resources and where the best care can be provided to the patient.

Four key clinical areas have been identified for improvement:

- Cardiac surgery
- Bariatric and upper gastrointestinal procedures
- Oncology and
- Transplant surgery.

Bariatric and cardiac expert working groups met in late 2021 to determine where these procedures should be performed and what resources are needed to achieve the best outcomes for patients. It is important that perioperative standards and outcomes inform decisions as to **where** the best place is to have surgery rather than focusing on the volume of cases.⁵

Hepatobiliary, pancreatic and oesophageal expert working groups are being considered in 2022.

COLLABORATING WITH VMIA

We are working with VMIA on a project to prevent and minimise perioperative harm. Preoperative, perioperative, and postoperative themes have been identified from claims data and we are scoping the best strategies to address this.

We are looking at the potential benefits of establishing a Victorian version of National Health Service's Getting It Right First Time⁶, a program designed to improve care and standardise data on key clinical procedures, perioperative processes and outcomes.

SENTINEL EVENTS

We have worked closely with SCV to improve the notification and sharing of information on sentinel events associated with perioperative care (see report on page 42).

CORONERS COURT OF VICTORIA

We have improved communication between the Coroners Court of Victoria and VPCC to ensure information on perioperative deaths is more complete and, where possible, to avoid duplication of effort (see report on page 48).

WORKSAFE VICTORIA

We partnered with WorkSafe Victoria on [Managing surgical plume exposure in healthcare](#) guidance document for employers. We also published a companion paper on [Clearing the air on surgical plume](#) in the ANZ J Surgery⁷.

GABAPENTINOIDS AND OPIOIDS ALERT

With the support of SCV, an alert was issued in July 2021 on gabapentinoids and opioids and the risk of respiratory compromise if prescribed in combination⁸. [Alert: Use of gabapentinoids in combination with opioids.](#)

LIPOSUCTION COMPLICATIONS

Through the review and analysis of cases, VPCC identified a cluster of adverse events associated with complications following liposuction procedures in Victoria. Several media outlets reported on this issue in October 2021 and the DH Secretary was advised.

VPCC formed an expert working group with DH's Regulatory, Risk, Integrity and Legal division to develop a liposuction standards guideline. The guideline is currently being finalised, following consultation and feedback from stakeholders.



A LIFE-THREATENING COMPLICATION OF LIPOSUCTION REQUIRING MULTIPLE RE-OPERATIONS

A woman underwent abdominal and flank liposuction in a private day facility providing cosmetic surgery. The medical practitioner performing the procedure had no admitting rights to a health service providing emergency or overnight care.

Some days after surgery, the patient started feeling unwell and feverish and presented as an emergency to a public hospital where she was admitted under the plastic surgery unit. The patient was started on intravenous antibiotics and taken to theatre for multiple operations to manage the infected and dead abdominal wall tissue complicating her liposuction. She spent more than two months in hospital before she was finally discharged home.

Lesson

In 2021, VPCC identified a cluster of cases admitted to Victorian hospitals with serious complications of liposuction. In collaboration with DH, VPCC has developed a Victorian guideline for the safe practice of liposuction in day hospitals to inform consumers about:

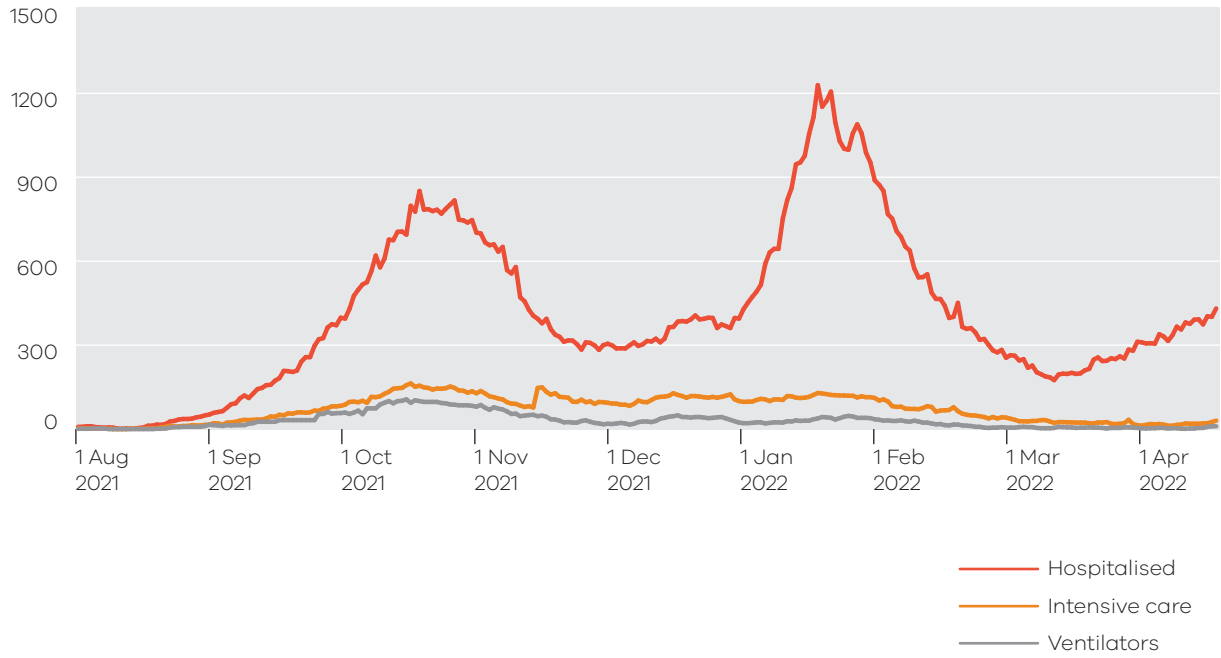
- potential risks
- the experience and expectations of the medical practitioner carrying out the procedure
- the accreditation requirements of the facility.

COVID-19 AND PERIOPERATIVE CARE

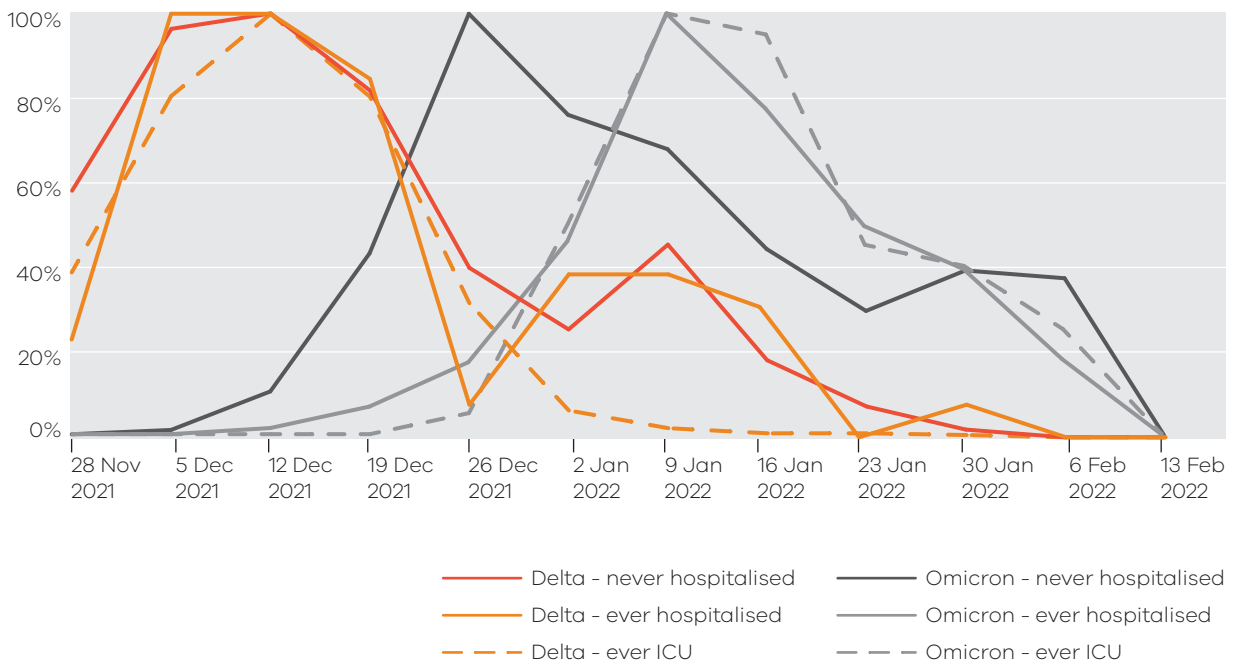
As in 2020, VPCC has supported the perioperative response throughout the COVID-19 pandemic in 2021. VPCC has been communicating and working with clinicians, SCV and DH on issues affecting the perioperative sector in response to the ongoing pandemic.

VPCC held regular meetings with Victorian surgical directors within health services, chairs of procedural specialties and directors of anaesthesia to provide perioperative situation updates and inform DH on appropriate strategies and guidelines.

COVID-19 HOSPITALISATION RATES IN VICTORIA DURING LATE 2021 AND EARLY 2022



PROPORTION OF SARS-COV-2-VOC ISOLATES BY WEEK OF SAMPLE COLLECTION, 28/11/21 TO 30/01/22



ELECTIVE SURGERY IN VICTORIA, 2021

Restrictions on elective surgery in response to COVID-19 have had a serious impact on Cat 2 (semi-urgent treatment within 90 days) and Cat 3 (non-urgent-treatment within 12 months) waiting lists (see next section). As a result, the numbers of patients waiting for surgery and the length of wait time increased. In addition, the number of patients waiting for an outpatient appointment and wait time for consultation with most specialties increased considerably.

Early in 2021, there were short, sharp lockdowns to eliminate COVID-19 from Victoria. This strategy was successful until the major wave of the Delta variant in the second half of the year.

Initially, non-urgent elective surgery was restricted, but we learned from the experience of the third (February 2021) and fourth (May 2021) lockdowns that it was preferable to keep elective surgery going in the absence of too great a pressure on the health system for staff, beds, and intensive care.

This kept the elective surgery waiting list numbers steady in the first half of 2021 (approximately 65,000, up from 50,000 at the start of 2020), until the Delta and Omicron waves hit Victoria. The elective surgery waiting list has now grown to over 80,000 (see **Table 1**). Average waiting times for category 2 and 3 surgeries have more than doubled over the past two years.

- Category 1** urgent, needing treatment within 30 days
- Category 2** semi-urgent, needing treatment within 90 days
- Category 3** non-urgent, needing treatment within 12 months.

From June 2021 until the beginning of October 2021, elective surgery continued in private health services without restriction, though several health services in COVID-19 hot spots were forced to reduce elective surgery to conserve resources.

By late September 2021, public health services were struggling to manage a rising number of hospital admissions, with approximately 10% requiring ICU care. The availability of the private system in late September, October and November enabled most of the state's urgent (Cat 1) elective surgery to be undertaken, though access to private hospital operating lists in some places was limited. Some very successful public in private models of delivering elective surgery and/or providing postoperative ICU care were established.

In December 2021, private hospitals were able to resume elective surgery at 75% of previous capacity. Unfortunately, 2022 began with a surge of COVID-19 cases due to the Omicron variant, which threatened to overwhelm the health system. There were shortages of health care workers, pressure on beds, emergency departments with ambulance ramping and delays until a Code Brown was called in January 2022. Elective surgery across both public and private sectors had to be restricted to urgent cases only, as the first two weeks of 2022 saw more COVID-19 cases than the whole of 2021.

It is anticipated we will need a minimum of two to three years to catch up with the backlog of cases on the elective surgery waiting list, as well as considerably more perioperative capacity to deliver care. VPCC will work with DH and SCV on a strategy to manage the growing elective surgery waiting list to ensure Victorians get the procedures they need. It is important to note that patients on the Cat 2 and 3 waiting list are now considered essential surgery due to the ongoing delays from COVID, even though they are not as urgent as patients in Cat 1.

TABLE 1: PATIENTS WAITING

	No. of Episodes		
	2020	2021	2022
January	50,950	65,634	85,566
February	51,578	65,537	89,124
March	51,148	65,236	89,940
April	53,281	65,472	
May	55,265	65,356	
June	55,605	66,190	
July	56,379	65,224	
August	61,353	64,637	
September	65,681	67,126	
October	65,802	72,194	
November	64,682	76,344	
December	64,985	80,220	

Source: Elective Surgery Information System (ESIS).

To view elective surgery waiting list, visit VAHI at
<https://vahi.vic.gov.au/reports/victorian-health-services-performance/elective-surgery>

SUPPLY CHAIN DISRUPTIONS

There have been serious threats to the supply chain for essential perioperative items. In March 2021, SurgiWrap, a polypropylene product essential for sterile surgical instrument trays, became difficult to source. Polypropylene was being used to manufacture more N95 masks and other PPE. Over Easter, DH and Health Share Victoria successfully secured sufficient polypropylene surgical wraps so that elective surgery did not need to be restricted, despite several weeks when resources had to be shared and conserved at the local level.

VPCC, its subcommittees and advisory groups continued to provide perioperative input into the PPE Taskforce (working on PPE stock and supply) and Health Care Worker Infection Prevention and Wellbeing Taskforce (providing specialist advice to DH to reduce cases of COVID-19 among healthcare workers and to improve their physical and emotional wellbeing).

VPCC REPRESENTATION ON COMMITTEES, WORKING GROUPS AND TASKFORCES

VPCC will continue to provide perioperative advice throughout 2022 on COVID-19 matters. VPCC is also represented on the following committees and working groups, some of which have been established primarily to respond to COVID-19:

- VPCC Victorian Surgical Directors Group
- Healthcare Worker Infection Prevention and Wellbeing Taskforce
- COVID-19 Healthcare Intelligence Working Group
- PPE Taskforce
- Taskforce on Health Equipment and Supply Chain
- Indirect Impacts Expert Working Group, rebranded the Quality and Safety Signals (QASS) group in 2022
- Victorian Association of Directors of Departments of Anaesthesia
- ANZCA Victoria Regional Committee
- SCV Clinical Leadership Expert Group that produced consumer and clinician/health service guidance on long COVID (February 2021)
- Victorian Post-Acute COVID-19 Sequelae Research Group
- Victorian Audit of Surgical Mortality Management Committee
- ANZCA Mortality Subcommittee

PREOPERATIVE SCREENING AND TESTING

Early in 2021 when the community prevalence of COVID-19 was low, we relied on perioperative screening, without routine PCR testing. Mandatory PCR tests prior to surgery were only re-introduced at the end of August 2021 and remained for the rest of the year.

From January 2022, pressure on the PCR testing system saw rapid antigen tests increasingly used to confirm COVID-19 status. By then, and quite suddenly, a huge proportion of the population were either close contacts or had had COVID-19.

WHEN IS ELECTIVE SURGERY SAFE AFTER COVID-19?

In 2022, it will be important to ensure that patients having elective surgery have fully recovered from any COVID-19 infection. The timing of surgery depends on the operation urgency, the severity of infection, vaccination status and post COVID-19 sequelae. Where a patient has symptoms of long COVID-19, multisystem assessment can determine how a patient's condition can be optimised prior to surgery.

The current recommendations are to wait a minimum of seven to eight weeks where the condition being treated allows. ANZCA have recently published an informative and up to date living document guidance on this topic⁹.

VPCC is also working with the Surgical Directors to report the outcomes of patients with COVID-19 who had emergency or urgent surgery during the Omicron wave in early 2022.

THE VICTORIAN POST-ACUTE COVID-19 SEQUELAE RESEARCH GROUP AND LONG COVID

The Victoria Post-acute COVID-19 sequelae (a condition which is the result of a previous disease or injury) research group promotes collaboration between clinical researchers from all major health services managing COVID-19, major university groups and principal research institutes (including Burnet, Doherty, Walter and Eliza Hall and Baker) studying the immunobiological effects of long COVID-19.

These researchers are working with VAHI and the Centre for Victorian Data Linkage to assess the likely impact of long COVID-19 on the health system.

The perioperative impact is one aspect of this study, which is focused on longer term health outcomes of COVID-19. There is growing evidence from overseas and some from Victoria (see below) that COVID-19 infection is associated with poorer health outcomes, increased multi-system morbidity and mortality up to a year or more after the acute infection. These associations are not limited to those who had a severe acute infection requiring hospitalisation and carry significant implications for health care demand in the future.

A study from Victoria has shown that 'Infection with SARS-CoV-2 substantially elevates the risk of several conditions including myocarditis and pericarditis (incident rate ratio [IRR] 15), pulmonary embolism (IRR 7), thrombocytopenia and coagulative disorders (IRR 7), acute kidney failure (IRR 5) and acute myocardial infarction (IRR 4).'¹⁰

OPPORTUNITIES TO IMPROVE PERIOPERATIVE CARE

During the year, VPCC consumer representatives provided valuable input to various focus areas including:

- Unplanned returns to theatre
- Inter-hospital transfers for escalation of care
- Pandemic impact – elective surgery, visitor oversight of patients
- Best care and best place guidance
- Complications for cosmetic procedures
- Taxonomy tool for anaesthetic case reviews.

PARTNERING WITH PATIENTS AND CONSUMERS

Patients do not specialise. They are across all departments of health services. They experience the ripple effects that result from treatment decisions. Through partnership, they offer unique insights into practice and system improvements. As the end-users of services, they are critical to helping design and shape those services.

Significant, yet often unrecognised, safety and quality improvements have originated over many years through patient and consumer suggestions. Their contributions to improvement work keep the conversations focused on the impact on patient care, while working to ensure the complex environment of healthcare planning, policy development and service delivery does not lose sight of its simple goal – better patient outcomes.

At the bedside, they play a critical role in safe high-quality care: from providing information about unique patient requirements and risk factors, to alerting staff to early signs of deterioration.

They provide feedback on experiences of care: what they see and hear, gaps and barriers they experience that are not obvious to staff, the quality of team communication and outcomes of care. They provide insights on how, whether and to what extent procedures were successful according to what patients expected. Lived experience brings understanding with unique knowledge and expertise.

With ever changing movements in population, cultural mixes, and priorities within communities, health services need to shift and re-prioritise alongside them. Consumer representatives act as a critical link in health service strategic decision-making by bringing community expectations to the table.

For VPCC, consumers have helped provide a deeper understanding of the unique needs faced by many members of the community who often experience poorer health outcomes: people living with disability or chronic illness, those from culturally and linguistically diverse backgrounds, people with lower socioeconomic or health literacy levels, or those living in remote or rural settings.

DATA, REGISTRIES AND REPORTING TO INFORM PERFORMANCE

The work of VPCC is dependent on sound data. Health service data is collected and stored in several different repositories; unfortunately, not all of them are well interfaced and connected! We seek to support and highlight, not duplicate, the work of clinical quality registries and state-wide or national audits.

The Victorian Admitted Episodes database (VAED) contains data provided by health services and hospitals on all admissions to hospital including day cases. The VAED records activity and provides essential information for funding. It is based on International Classification of Diseases version 10 (ICD10) codes. It contains limited safety and quality information and at best provides signals of good or poor performance that need to be further investigated. However, health system planning is often dependent on the information provided by the VAED.

VAHI produces several performance reports for hospitals and health services including:

- PRISM (Program Report for Integrated Service Monitoring)
- Monitor
- Victorian Health System Performance.

These reports provide information on key performance indicators (KPIs) and allow for benchmarking against similar health services reports for quality assurance. They cover a wide range of safety and quality topics, though they are often dependent on VAED.

VPCC is working with VAHI and SCV to identify, at a system level, serious perioperative events including heart attacks, strokes, pulmonary embolism, unplanned returns to theatre and unplanned readmissions. These cases often present to a different health service from where the original procedure occurred. Our role is to assist health services to understand their complication rates and to learn from each event.

The Centre for Victorian Data Linkage (based in VAHI) informs health system planning at various levels. VAHI and VPCC have collaborated on reporting emergency laparotomy outcomes (page 56) and how researchers are trying to understand the longer-term impact of COVID-19 on various body systems including the heart, lungs, kidneys and brain; the risks for persons suffering various comorbidities such as diabetes; and when it is safe for someone to undergo surgery after a COVID-19 infection.

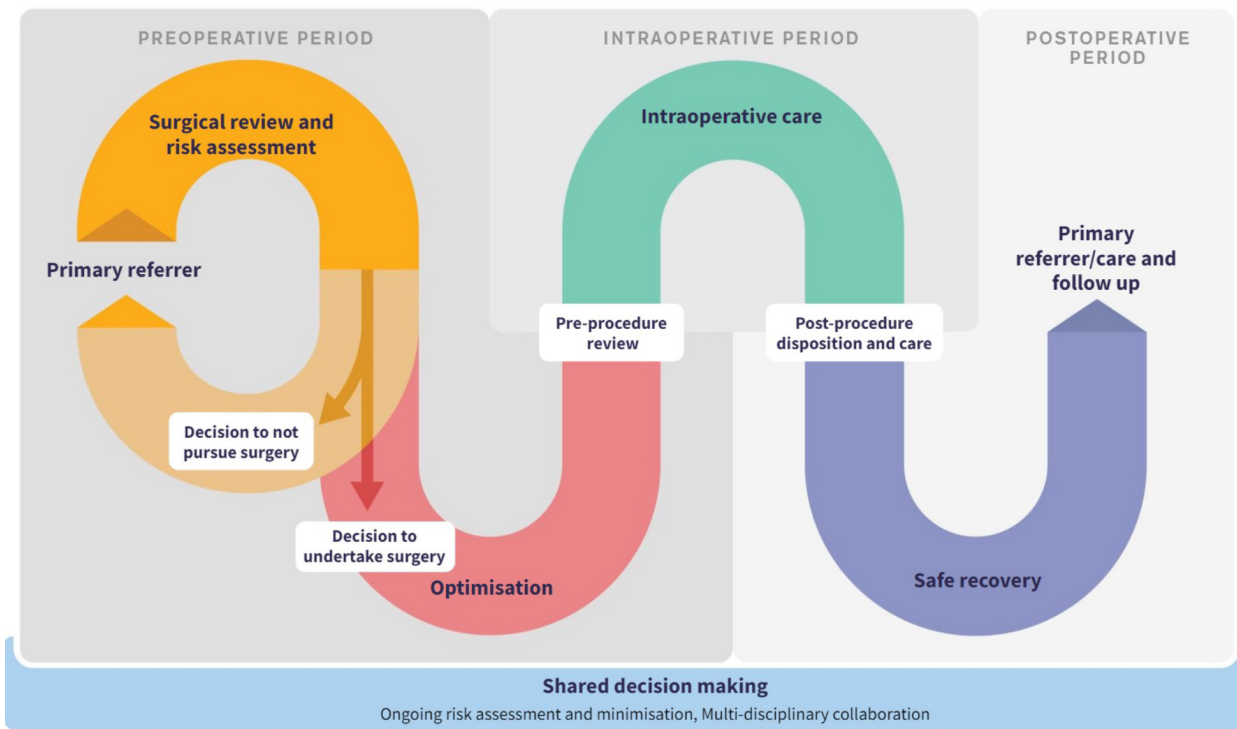
Clinical quality registries provide rich safety and quality data, including data required for risk adjusting clinical outcomes. There are several relevant registries for the perioperative sector, and most collect data on the quality of care before, during and after surgery.

It is the Commonwealth Department of Health's strategy to maximise the value of Australia's clinical quality registries.¹² These include the Victorian Audit of Surgical Mortality (VASM) (page 38), the hip fracture (page 52), emergency laparotomy (page 56), prostate cancer, thyroid cancer, bariatric, cardiothoracic, and vascular surgery audits/registries.

THE PERIOPERATIVE CARE FRAMEWORK

VPCC supports the Australian and New Zealand College of Anaesthetists Perioperative Care Framework.¹¹

From the contemplation of surgery to an optimal outcome



SURGICAL SUBCOMMITTEE

The role of VPCC Surgical subcommittee is to identify learning points from surgical deaths that were considered potentially preventable, as well as collate and classify all surgical deaths in Victoria to identify systemic issues that could be contributing to mortality. We achieve this by working closely with VASM and through multisource case reviews, as well as leveraging off information hosted in clinical quality registries.

All surgery carries some risk. Unfortunately, patients sometimes do not survive surgery or die after having a surgical procedure. Many of these deaths are not preventable; however, in some instances, death is an unexpected outcome.

It is especially important that the issues surrounding death in the latter group are studied to see if similar adverse outcomes can be prevented in the future. It is also important that all deaths are reviewed systematically to ensure there are no consistent preventable themes or risk factors that could be mitigated in the future.

A RARE BUT LIFE-THREATENING COMPLICATION OF SURGERY

A woman underwent a caesarean section for failure of labour to progress, giving birth to a healthy baby boy. Over the next few days, her abdomen became distended and bloated; she was very uncomfortable and was unable to open her bowels. A CT scan showed psuedo-obstruction of her colon. The obstetric team consulted the general surgeons as her right colon was over 12 cm in diameter on the imaging. The surgeons arranged an urgent colonoscopic decompression the same day, sucking the air out and allowing her bowel to deflate and start working again.

Lesson

Postoperatively, some patients requiring significant analgesia to manage their pain will experience impairment of bowel motility and function. This usually resolves itself, but if it doesn't there is a risk of the distended bowel splitting and bursting.

Often an intravenous infusion to encourage motility can be given (neostigmine), but if the bowel becomes overly dilated, colonoscopic decompression is indicated. If the bowel does burst, this can result in an emergency operation to remove the damaged (usually right) colon.

TRANSFERS FOR ESCALATION OF CARE

The first theme of concern identified by the Surgical subcommittee was inter-hospital transfers. Patients are typically transferred between health services when the primary hospital is not able to provide the level of care required by a particular patient.

Delays in transfer were noted to lead to worse outcomes for patients.

To better understand the risk associated with inter-hospital transfers, VPCC hosted a multi-disciplinary workshop with input from stakeholders across the sector. Important learning points included:

- **Timely transfer of care** can be an important step in continuing the care of patients requiring higher level or specialist interventions not available at the primary site.
- **Good transfer culture** includes a willingness to accept the patient and safe transfer is supported by consultant-to-consultant discussion about the reason for transfer and the ongoing plans.
- **Opportunities to streamline processes** that underpin transfers to enable more timely and safer transfer include bed management, communication with Ambulance Victoria, single ambulance transfers and interhospital communication.
- **Feedback** to the transferring hospital could be improved.
- **Monitoring transfers at a system level** may provide a quality improvement opportunity by enabling the identification of procedures leading to higher levels of morbidity.

As a result of this workshop, VPCC will develop guidelines to support good transfer culture and best transfer practice.

TEN PRINCIPLES TO GUIDE TRANSFER BEHAVIOUR AND PERFORMANCE

1

Pre-agreed protocols for transfers between health services

6

Determine appropriate mode of transport with ambulance/retrieval service

2

Direct communication (preferably consultant to consultant)

7

Involve bed manager in arrangements and strategy for no available beds

3

Shared (not shifted) responsibility between referring and receiving clinicians

8

Written documentation of clinical details provided by referring hospital/clinician

4

Support (not shame) the referring clinical team

9

Provide feedback and discharge information to referring clinician and hospital

5

Agree on urgency, timelines, risks and priorities for treatment

10

Health service and unit audit of every transfer performance and outcome.

IMPLANTABLE MEDICAL DEVICES

The Therapeutic Goods Administration recently amended their requirements for implantable medical devices (which includes everything except sutures, staples, screws, plates, wires and dental devices).¹³ Patients must now be given an implant card, detailing name, model, manufacturer and various identifying numbers, and an information leaflet, detailing type of implant, safety information and how to report any device issues.

The most common device used in urology is a ureteric stent which, with few exceptions, must be removed within a pre-determined time. The consequences of delaying removal are well known and a recent report using Australian and New Zealand Audit of Surgical Mortality (ANZASM) data details several deaths related to removing forgotten stents.¹⁴ Despite numerous papers over the last 25 years, there are still inadequate systems in place to ensure that all patients with ureteric stents are recalled in a timely fashion.

Recommendation: VPCC recommends that all Victorian health services establish registries to track ureteric stents and these registries are regularly reviewed by a permanent urology staff member.

Other implantable devices that cause significant complications include biliary stents and inferior vena cava filters.

Biliary stents are usually inserted endoscopically to drain the biliary system, reducing the risk of obstruction, cholangitis (inflammation of the bile ducts usually caused by bacteria) and septicaemia. Stents that are not removed as planned within a few weeks may become a nidus for stone formation, and block, with subsequent obstruction, cholangitis and septicaemia, the reasons they were inserted in the first place.

Inferior vena cava filters are inserted via the groin into the vena cava to prevent fatal pulmonary embolism. Pulmonary embolism is normally treated by anticoagulants but there are patients with a high risk of bleeding for whom anticoagulants may not be safe.

These filters are often inserted in major metropolitan hospitals, but the patient may live in rural or regional Victoria. This presents a small risk that arrangements are not made or understood as to when to remove the filter (usually after six weeks), which becomes difficult and dangerous to remove if left too long.

All patients with a vena cava filter need to be made aware of when and where to have their filter removed. Their referring and primary care practitioners also need clear discharge information about the presence of and need to remove the filter at the appropriate time.

HEAVILY ENCRUSTED URETERIC STENT THAT WAS LONG OVERDUE FOR REMOVAL



ANAESTHETIC SUBCOMMITTEE

Cases referred to VPCC Anaesthetic subcommittee (ASC) provide a valuable source of information to:

1. better understand factors contributing to anaesthesia-related morbidity and mortality (Safety I)
2. recognise aspects of care that were effective in preventing or reducing harm (Safety II)
3. identify emerging safety signals in the delivery of multidisciplinary perioperative care.

Direct referrals from anaesthetists to VPCC provide an opportunity to better understand the complex nature of anaesthesia-related morbidity and mortality events that occur across Victoria in a range of public, private, metropolitan, regional, and rural healthcare settings, including day procedure centres and other non-operating room anaesthesia locations.

127 cases (completed classifications) have been classified by the ASC during 2020 and 2021 (56 in 2020 and 71 in 2021). A core challenge for the ASC has been how to take the key safety messages collated from these reviews and translate them into actions that can improve processes and outcomes of perioperative care at a broad level. A similar number of cases (95) have been classified through VASM's new Perioperative Mortality Committee (PMC) which includes VPCC membership.

When a patient experiences an adverse or unexpected clinical outcome, the considered reflections from clinicians involved in the patient's care provide unique insights about not only **what happened** (the individual **patient story**), but also about **how** the event unfolded (the context in which it occurred) and **why** it unfolded that way (the broader **underlying systems and processes of care**).

Collating these stories and identifying common themes in how and why the events unfolded enables a strategic approach to targeting safety messaging and specific recommendations for improving perioperative outcomes. But learning from what went wrong is only part of the story.

There are many examples in referrals to VPCC where timely and effective care prevented or reduced the severity of harm, often in extremely difficult clinical circumstances. For example, successful resuscitation and crisis management during an intraoperative cardiac or respiratory arrest, including cases of malignant hyperthermia and anaphylaxis or during management of an unexpected difficult airway.

Effective crisis management was often underpinned by:

- early recognition of clinical deterioration or a change in condition
- prompt escalation of care (seeking help)
- clear communication within and between teams
- use of crisis management resource kits (anaphylaxis and malignant hyperthermia kits).

Cases involving intraoperative cardiac arrest have highlighted the importance of ongoing vigilance/observation at the end of a case and during transfer off the surgical/procedural table, as unexpected events or clinical deterioration can occur during this period.

Positive learnings have also related to timely and effective preoperative shared decision making with clear goals of care guiding subsequent intraoperative and postoperative management in patients with significant perioperative risks.

Healthcare is a 'complex adaptive system' where good outcomes depend not only on the quality of underlying systems and processes of care, but also on the capacity of clinicians to problem solve and adapt within the pressures and demands of this complex system. Learning from what went well (Safety II) is as important as learning from what went wrong (Safety I) and allows us to better understand factors that create resilience in this complex system.^{15, 16}

Learning from centrally reported adverse events and near-miss events is particularly relevant within a new or rapidly changing context, such as that presented by COVID-19. In such contexts, significant events may be infrequent at individual department or health service level, but when aggregated at a state level, may highlight emerging risks which can then be communicated in a timely way to clinicians, health services and the broader community.

A NEW CLASSIFICATION MODEL: COMBINING A SAFETY I AND SAFETY II APPROACH

During 2020 and 2021, the ASC led the development, testing and implementation of a new perioperative event classification model for VPCC which incorporates a combined and complementary Safety I and Safety II case review and classification approach:

- **Safety I:** Learning from what went wrong – identifying opportunities for improvement
- **Safety II:** Learning from what went well – identifying aspects of care that prevented or mitigated harm

This model enables a more comprehensive and nuanced approach to capturing key safety messages from referred cases. Our VPCC consumer members have been instrumental in helping develop a patient/carer perioperative safety theme section for this new model.

Lessons

There is need for regular, ongoing intraoperative patient assessment. Alongside physiological monitoring, this should include regular checking of:

- airway devices
- intravascular lines
- pressure areas
- patient positioning (for example when an extra person scrubs in and arm boards are adjusted to a new position under the cover of the surgical drapes)
- thrombo-embolus deterrent (TED) stocking (if feasible).

SAFETY I: LEARNING FROM WHAT WENT WRONG

Aspiration events

In 2020 and 2021, the ASC reviewed five mortality cases and one morbidity case involving pulmonary aspiration:

- two on induction of relaxant general anaesthesia in fasted patients
- two during general anaesthesia with a laryngeal mask airway
- one during intubation in the context of managing a shared airway
- one during recovery following general anaesthesia.

Key messages regarding aspiration:

- Regurgitation and aspiration can still occur despite careful assessment and management
- Clinicians providing general anaesthesia and procedural sedation need to be alert to the possibility of regurgitation and aspiration and be able to promptly recognise and manage such an event in terms of skills, equipment and staffing. This is particularly important in non-operating room locations.

Cases reviewed have also highlighted the complexities of decision making around whether to proceed with surgery after an aspiration event on induction, particularly in the context of non-elective procedures.

The importance of routine ongoing intraoperative checks

In 2020-2021, the ASC reviewed several cases in which adverse events occurred intraoperatively (sometimes late in a case) where issues relating to ongoing regular checks of patient position, pressure areas, airway devices and intravascular lines were identified.

SAFETY II: LEARNING FROM WHAT WENT WELL

Effective intraoperative crisis management

In 2020-2021, the ASC reviewed many cases where emergency crisis management was required during anaesthesia for surgery or a medical procedure, or in the early postoperative/postprocedural period.

Effective intraoperative crisis management was often underpinned by:

- early recognition of clinical deterioration or a change in condition
- prompt escalation of care (seeking help)
- clear communication within and between teams
- use of crisis management resource kits (for example, anaphylaxis and malignant hyperthermia kits).

Cases involving intraoperative cardiac arrest have also highlighted the importance of ongoing vigilance and observation at the end of a case and during transfer off the surgical or procedural table, as unexpected events or clinical deterioration can occur during this period.

Safety I
Opportunities for
improvement

23 cases



Safety II
Positive learnings

25 cases



PERIOPERATIVE CARDIOVASCULAR EVENTS

Perioperative cardiovascular events include heart attacks, strokes, and pulmonary embolism. These represent a recurring, often multifactorial, event that can happen at different times across a patient's perioperative journey.

In 2020, VPCC identified that these events are not systematically well-captured, often because they occur after discharge from hospital and about half of these patients are readmitted to a different unit or hospital. The surgeon and/or anaesthetist may not be aware that a patient suffered a postoperative cardiovascular event, while severe associated morbidity (without mortality), is not reported to VASM.

VPCC has developed two evidence-based audit tool templates to support targeted review by health services:

- Perioperative myocardial infarction review template (**Appendix 4**) – in 2020
- Venous thromboembolism review template (**Appendix 5**) – in 2021

An audit tool for review of perioperative stroke events is currently in development to complete the suite.

The audit tools are being piloted on relevant cases referred to VPCC and in some health services. The tools are a useful resource for health services to review their own events and report findings to VPCC (acknowledging that some health services may already audit such events using their own audit tool). The data from these audits can improve our understanding of how to minimise the risk of these events occurring in the future in all stages of perioperative care.

BEFORE SURGERY

- Assessing cardiovascular and venous thromboembolism risk factors
- Considering when and for how long to stop anticoagulant or antiplatelet therapy
- Optimising cardiovascular risk factors such as hypertension and heart failure prior to surgery
- Prehabilitation in some cases.

Example: Elderly patients with a fractured neck of femur will benefit from pain relief, orthogeriatric assessment, optimisation of comorbidities and timely surgery (within 36–48 hours). ACSQHC has developed care standards on the preoperative management of patients with a fractured hip.

DURING SURGERY

- Minimising the risk of deep vein thrombosis (DVT)
- Managing blood pressure, cardiac output, heart rate and rhythm during anaesthesia and surgery, with appropriate monitoring and therapy.

AFTER SURGERY

- Ensuring DVT prophylaxis is given to moderate and high-risk patients
- Maintaining fluid and electrolyte balance
- Adequate but not excessive analgesia
- Providing chest physiotherapy and achieving early mobility
- Prompt treatment of any deterioration
- Optimisation of comorbidities
- Active planning as to when to restart anticoagulation.

INFORMING THE DEVELOPMENT OF CLINICAL CARE STANDARDS

VPCC has provided formal feedback to the ACSQHC on three clinical care standards (CCS).

- Sepsis CCS – to encourage early diagnosis and appropriate, evidence-based management of sepsis from symptom onset through to post discharge care (currently out for consultation)
- Opioid Analgesic Stewardship in Acute Pain CCS – to guide appropriate use and review of opioid analgesics in the management of acute pain, to optimise patient outcomes and reduce the likelihood of opioid-related harm, (currently out for consultation)
- Acute Anaphylaxis CCS – to encourage early diagnosis and appropriate, evidence-based management of acute anaphylaxis.

Referred cases to VPCC have helped inform this feedback to the ACSQHC on the development of CCS relevant to perioperative care.

PERIOPERATIVE MANAGEMENT OF DIAGNOSED OR SUSPECTED OBSTRUCTIVE SLEEP APNOEA (OSA)

The ASC continues to receive reports where diagnosed or suspected OSA is felt to have contributed to adverse events in both the intraoperative and postoperative period. As recommended in the final Victorian Consultative Council on Anaesthetic Mortality and Morbidity report²⁰, a statewide set of principles is needed 'to guide and support a more consistent approach to the perioperative care of patients with diagnosed or suspected OSA to reduce the risk of postoperative complications.'

OSA is associated with a higher risk of postoperative respiratory complications, while the emerging issues of undiagnosed OSA and central hypoventilation syndromes are becoming increasingly relevant to perioperative care in the context of a rising prevalence of severe obesity.

The perioperative management of OSA includes:

- preoperative OSA screening to guide and inform perioperative care planning
- considering individual patient factors
- likely impacts of surgery, anaesthesia, and medications.²⁴

It requires reassessment and risk stratification of patients with confirmed or suspected OSA in the PACU after surgery, to determine postoperative monitoring and care needs.

These care needs should be clearly documented and effectively communicated to the multidisciplinary perioperative care team to prevent or enable early recognition and management of OSA-related perioperative concerns¹⁶. New guidance has also recently been released by the National Institute for Health and Care Excellence regarding obstructive sleep apnoea.²⁵

THE DIFFICULT AIRWAY ALERT

In 2021, VPCC endorsed a recommendation from the ASC to adapt the Queensland Health Statewide Anaesthesia and Perioperative Care Clinical Network (SWAPNet) Difficult Airway Alert (DAA)¹⁷ for use in Victoria.

The DAA provides clear, concise and effective communication about a difficult airway event, reducing the risk of future harm due to airway management problems while undergoing anaesthesia. It has been successfully trialled and a Victorian version is currently in development.

HOW WILL A VICTORIAN DIFFICULT AIRWAY ALERT FORM MAKE A DIFFERENCE?

Difficult airway management (particularly when unanticipated) remains a significant cause of perioperative morbidity and mortality.^{18,19}

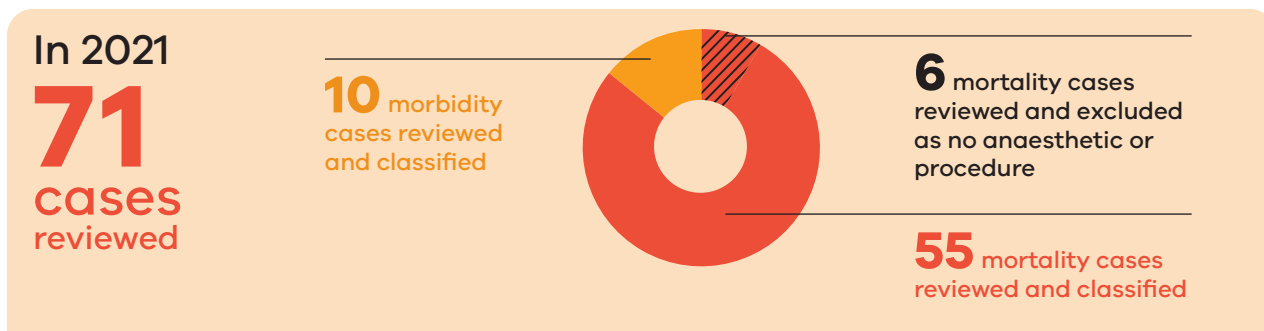
The final VCCAMM report identified that airway events 'formed the largest group of events deemed definitely or probably preventable', noting 'these events underscore the important roles of training, planning, preparation (including assessment of required skills, experience, expertise) and team communication during anticipated difficult airway management'.²⁰

Previous difficult or failed intubation has been identified as a strong predictor of a future difficult intubation.²¹

- Clear documentation and communication about the nature and management of a previous difficult airway event allows future healthcare providers to take this past experience into consideration when planning future anaesthetic care and/or airway management. It is recognised as important in the prevention and reduction of airway-related morbidity with subsequent anaesthetics.²²
- While the importance of difficult airway event documentation and communication (including with the patient) is well-recognised, there is no universally accepted standard for this documentation and the documentation is not always readily accessible between different hospitals and providers.²³

The Qld DAA form consolidates the key important critical information areas about a difficult airway experience. The alert includes a checklist for follow-up care, including speaking with the patient and providing copies of the alert to the patient and their GP (as well as inclusion in the medical record). The Qld DAA form has recently been updated to incorporate advances in airway descriptions and is endorsed by ANZCA.

As patients may require airway management/intubation in a range of settings (elective and emergent), VPCC is keen to support a Victorian version of the Qld Difficult Airway Alert form that can be used to inform both patients and healthcare providers.



VPCC ANAESTHESIA CLASSIFICATION CATEGORIES

NUMBER OF CASES CLASSIFIED IN 2021

Deaths or Morbidity Attributable to Anaesthesia	<p>1 Where it is reasonably certain that death or morbidity was caused by the anaesthesia or other factors under the control of the anaesthetist</p>	<p>12 2 Preventable* 1 Possibly preventable</p>
	<p>2 Where there is some doubt whether death or morbidity was entirely attributable to the anaesthesia or other factors under the control of the anaesthetist</p>	<p>1 1 Preventable*</p>
	<p>3 Where death or morbidity was caused by both medical/surgical and anaesthesia factors</p>	<p>28 1 Preventable* 3 Possibly preventable</p>
Death or Morbidity In Which Anaesthesia Played No Part	<p>4 Surgical death or morbidity where the administration of the anaesthesia is not contributory and surgical or other factors are implicated</p>	<p>10</p>
	<p>5 Inevitable death or morbidity, which would have occurred irrespective of anaesthesia or surgical procedures</p>	<p>13</p>

One patient was treated conservatively

***HUMAN FACTORS** Interactions between people, procedures, equipment, workflows and the work environment.

ELDERLY AND HIGH RISK PATIENTS

Elderly, high-risk and comorbid patients undergoing emergency surgery will benefit from consideration of high dependency or ICU care on the evening of surgery.

Example: Patients over 65 years of age requiring an emergency laparotomy will benefit from specialist physician and/or geriatric assessment of comorbidities and contribution to discharge planning. Medical input for these patients is an international care standard that most health services in Victoria achieve in less than a third of their elderly emergency laparotomy patients.

THE IMPORTANCE OF REVISITING GOALS OF CARE ACROSS THE PERIOPERATIVE PATIENT JOURNEY

Cases reviewed in 2021, have highlighted the importance of:

- clear preoperative discussion, clarification and documentation of goals of care in patients with high perioperative risk:
 - facilitating and enabling patient-guided effective shared decision making – right people involved, right timing, right discussions, best decisions
 - well-documented preoperative discussions with patient/family/carers and clear goals of care
 - shared expectations about the processes and outcomes of care, with everyone on the same page about perioperative care planning and management
 - a planned location for postoperative care.
- clearly and formally communicating the existence and content of an advanced care directive/goals of care plan/limitations of treatment (resuscitation plan) to the theatre team before surgery commences.

Identified opportunities for improvement include:

- **an active check-in theatre preoperatively** as to whether an advanced care directive exists, and/or goals of care/limitations of medical treatment (resuscitation plan) have been discussed and documented in relation to the planned surgical procedure
- **development of formal post-anaesthesia recovery unit (PACU) triggers for revisiting goals of care (with consultant level discussion):**
 - formal triggers in PACU regarding who should be notified/involved in review and discussions before there is a change of plan regarding post-operative care
 - ensuring inclusion of senior members of the surgical home team as well as the anaesthetic team in discussions and documentation of changes to reportable parameters before return to the ward.
- **a need for novel solutions to facilitate higher level acuity post-operative monitoring and care.**



THE IMPORTANCE OF REVISITING GOALS OF CARE ACROSS THE PERIOPERATIVE PATIENT JOURNEY

Scenario: Early post-operative deterioration in elderly patients after return to the ward.

An elderly patient with cardiovascular comorbidities requires vasopressor support during surgery for a fractured neck of femur. After an initial period of stability, the patient's condition deteriorates in the PACU in the evening with hypotension requiring boluses of metaraminol and fluids, but with no explicit decision or re-clarification of escalation plans and/or goals of care.

The patient returns to the ward with modified MET criteria and continues to deteriorate on the ward until the modified MET criteria trigger ICU review in the middle of the night, and an urgent decision in the context of crisis management, regarding goals of care.

VICTORIAN AUDIT OF SURGICAL MORTALITY

The efforts of VASM and VPCC to improve perioperative care before, during and after surgery rely on health services providing effective clinical governance. This includes ensuring perioperative morbidity and mortality (M&M) meetings review all cases with complications and are able to identify, address and resource opportunities for improvement.

The VASM report confirms that surgery in Victoria remains extremely safe and is consistent with the best reported outcomes in the world. For the first time, there were no reported major outlying health services.

The continuing COVID-19 pandemic has had major impacts on the delivery of surgery in Victoria, particularly elective surgery. Data collection during 2020 was also impacted.

Nonetheless, the [VASM 2020 report](#), released in early 2022, attests to the high standard of perioperative care in Victoria. The majority of patients who die present as emergencies and are elderly. The report also highlights opportunities for improvement in:

- the management of patients who require transfer from one health service to another
- the need for shared decision making between clinicians and patients, including documenting a patient's goals of management before surgery
- minimising delay in patients presenting as emergencies
- responding promptly to deterioration in the postoperative period.

The most important change over the last year has been the inclusion of VPCC in the Commonwealth Qualified Privilege²⁶ legislation. A new VASM committee, the Perioperative Mortality Committee, was established in 2021 and will allow improved information sharing, reduction in repeated hospital or surgeon assessments and multi-disciplinary review of selected cases (which have previously just had a surgical review), while still legally protecting participating surgeons (see tables on following pages).

During 2021, VASM was awarded a new three-year contract from SCV to review and monitor Victorian surgical mortality. VASM will continue to work collaboratively with VPCC, SCV, VAHI and other areas of the Victorian health community to improve patient care. A focus for the next three to five years is to improve data collection and sharing to drive significant changes in outcomes.

The Perioperative Mortality Committee has reviewed and discussed 95 cases between October 2021 to January 2022.

TABLE 2: CASES DISCUSSED AT THE VASM/VPCC PERIOPERATIVE MORTALITY COMMITTEE

GENDER	COUNT	%
Female	41	43.2%
Male	54	56.8%
TOTAL	95	100%

HOSPITAL STATUS	COUNT	%
Private	25	26.3%
Public	70	73.7%
TOTAL	95	100%

HOSPITAL CATEGORY	COUNT	%
Metro	72	75.8%
Rural	23	24.2%
TOTAL	95	100%

HOSPITAL CATEGORY	COUNT	%
Capital cities	65	68.4%
Other metropolitan	7	7.4%
Large rural centres	16	16.8%
Small rural centres	6	6.3%
Other rural centres	1	1.1%
TOTAL	95	100%

TABLE 3: OUTCOME OF CASES AND THEMES IDENTIFIED BY VASM/VPCC PERIOPERATIVE MORTALITY COMMITTEE.

CASE REFERRED TO	COUNT
Anaesthetic subcommittee	25
Surgical subcommittee	9
Anaesthetic and Surgical subcommittees	6
Noted	55
TOTAL	95

THEME IDENTIFIED	COUNT
Stroke	15
Myocardial infarction	11
Transfer	7
Surgical complications	6
Patient management	6
NOF	5
Surgery preparation issues	3
Patient factors	2
Hiatus hernia	1
Robotic surgery	1

Note: Some cases have overlapping themes

PERIOPERATIVE SENTINEL EVENTS

Sentinel events (categories 1-10) are a subset of adverse patient safety events that are wholly preventable and result in serious harm to or the death of a patient. Category 11 relates to serious adverse outcomes that require a major independent review to identify if the outcomes were preventable and/or how they might be prevented in the future.

Sentinel events are relatively infrequent, clear-cut events that:

- occur independently of a patient's condition
- commonly reflect hospital (or agency) system and process deficiencies
- result in adverse outcomes for patients.

VPCC was referred 22 sentinel event reports, predominantly related to aspects of perioperative care in 2021. Outcomes and recommendations are reported where available, though some root cause analyses were incomplete at the time of publication.

Overall, reports of perioperative sentinel events categories 1-10 were infrequent in Victoria in 2021, with only four reports classified as one of the 10 primary ACSQHC categories. There were no deaths in this cohort (sentinel events list in Victoria can be found in Table 3, Appendix 6).

- One of the four suffered permanent avoidable harm.
- One was an example of a wrong procedure that occurred due to an incorrect histopathology diagnosis.
- Two related to retained objects that required further surgery.
- One was due to a report of an anaesthetic pump programming error.

Review panels were often able to produce strong recommendations to prevent reoccurrence of events in these categories. Examples include deletion of high-risk programming modes from infusion pumps and discontinuing the use of non-radio-opaque products in trauma care.

Eighteen of the 22 perioperative care-related reports were related to Victoria's category 11 events, with 12 deaths and two examples of permanent harm reported. Some outcomes were not finalised and have not been included in this report.

Most (11/12 reports) were clinical process/procedure-related, with six relating to management of deterioration and one healthcare-related infection.

Two category 11 reports described hypoxic episodes during management of the difficult airway. ANZCA have recently increased their focus on the training of registrars and recurrent training of fellows in the management of the difficult airway. VPCC has also issued difficult airway guidance based on the [Queensland difficult airway alert](#).

Two category 11 reports describe death as an outcome following inadvertent, but unrecognised, bowel perforation during laparoscopic surgery. The council emphasises the need to maintain a high index of clinical suspicion and the value of early return to the operating theatre when there is unexpected deterioration following abdominal surgery.

The council observed that category 11 reports often described a complex chain of events in unwell patients and/or high-risk surgery or procedures. Review panels appeared to have difficulty in identifying clear root causes beyond aspects of human performance including the practice of individual clinicians. Consequently, recommendations were at best of moderate strength and often included modification of institutional procedures and/or additional education and training of staff.

The council strongly endorses the systematic review of serious unexpected adverse outcomes at the local level as a minimum.

However, several category 11 reports were examples of recognised procedural complications (perforation during colonoscopy, ureteric injury during surgery, pulmonary catheter arterial injury) rather than clear cut, wholly preventable indicators of hospital system or process deficiencies. The council is of the view that they could be better classified as unexpected serious adverse outcomes.

TABLE 4: PERIOPERATIVE SENTINEL EVENTS

SENTINEL EVENT CATEGORY	CATEGORY DESCRIPTION	SENTINEL EVENT SUBCATEGORY	NO OF CASES
3	Surgery or other invasive procedure performed on the wrong site resulting in serious harm or death		1
4	Unintended retention of a foreign object in a patient after surgery or other invasive procedure resulting in serious harm or death		2
7	Medication error resulting in serious harm or death		1
11	All other adverse patient safety events resulting in serious harm or death	Clinical process/ procedure	11

	EVENT SUMMARY	DEATH	PERMANENT HARM	KEY RECOMMENDATION
	Incorrect cancer diagnosis due to biopsy processing incident	No	Yes	
	Retained lap band anchor following lap band removal. Identified when reexploring infected wound.	No	No	TGA notified. Issue communicated to craft group
	Retained non radio-opaque haemostatic dressing inserted post multitrauma - required re-operation	No	No	Ceased use of non radio-opaque haemostatic dressings
	Anaesthetic overdose due to pump programming error leading to procedure postponement	No	No	High risk infusion program modes deleted from infusion pumps
	Difficult airway leading to hypoxia during anaesthesia in pregnancy	No	No	Institutional focus on 'can't intubate, can't oxygenate' training
	Complication of epidural in labour (unplanned intrathecal injection) leading to CPR and emergency LUSCS	No	No	Institutional focus on anaesthetic registrar epidural training
	Oesophageal perforation complicating cardiac procedure	Yes		
	Hypoxic neurological injury due to episodes of hypoxia during management of difficult airway	No	Yes	
	Bowel perforation during colonoscopy	No	No	
	Complicated cardiac valve surgery	Yes		
	Late secondary haemorrhage following vascular surgery	Yes		

TABLE 4: PERIOPERATIVE SENTINEL EVENTS (CONT.)

SENTINEL EVENT CATEGORY	CATEGORY DESCRIPTION	SENTINEL EVENT SUBCATEGORY	NO OF CASES
11 (cont.)	All other adverse patient safety events resulting in serious harm or death (cont.)	Clinical process/ procedure (cont.)	11 (cont.)
		Deteriorating patient	6
		Healthcare related infection	1

	EVENT SUMMARY	DEATH	PERMANENT HARM	KEY RECOMMENDATION
	Abdominal compartment syndrom following reversal of ileostomy	Yes		
	Pulmonary artery rupture caused by pulmonary artery catheter prior to cardiac surgery	Yes		Institutional focus on training and education in crisis management.
	Delayed diagnosis of ureteric injury secondary to adrenal surgery in setting of complex pathology	No	No	Institutional focus on better tracking of fluid balance in electronic medical record
	Early signs of sepsis (white cell count) missed prior to discharge	Yes		Institutional development of pre-discharge checklist
	Deterioration in setting of complex history of gastrointestinal dysfunction, weight loss and sepsis	Yes		
	Deterioration following complex urological cancer surgery	Yes		
	Bowel perforation during laparoscopic division of adhesions.	Yes		
	Bowel perforation during laparoscopic gynaecological surgery	Yes		
	Delay in recognition of sepsis and delayed referral to specialist burns centre	No	Yes	Institutional focus on burn and sepsis management education
	Delay in recognition of deterioration, deficits in MET call process	Yes		Institutional focus on preoperative screening and MET call process
	Surgical site infection following hip replacement. Deteriorated over 2 months	Yes		

THE VICTORIAN INSTITUTE OF FORENSIC MEDICINE AND THE CORONERS COURT OF VICTORIA

The Victorian Institute of Forensic Medicine (VIFM) is a statutory agency within the Justice and Community Safety portfolio under the Victorian Attorney-General. VIFM operates the Coronial Admissions and Enquiries Office and undertakes medico-legal death investigations on behalf of the Coroners Court of Victoria.

In an era when hospital (or consent-driven) autopsies have become a rarity, death investigation services provided by VIFM are increasingly relied upon to assist in understanding perioperative deaths.

Changing community attitudes and expectations, as well as cultural and religious imperatives, can present significant challenges to today's death investigation systems. In response, more sophisticated approaches have been developed, supported by technological advancements.

The result is a more responsive service, providing answers while ensuring case reviewability and minimising distress to families. In 2005, VIFM became one of the first facilities in the world to incorporate full-body CT scanning of all bodies admitted into its care.

In 2010, this capability was enhanced by the availability of post-mortem CT angiography and venography. Soon, VIFM will be the first forensic institution in Australasia to add dedicated MRI imaging to its death investigation capacity.

VPCC has worked with the coroner to ensure we are notified of perioperative deaths that occur after discharge from hospital. These represent potential gaps in health system reporting, and opportunities for learning. Deaths after discharge and in the community are not always notified to the hospital that treated the patient. There are safety and quality themes that can be derived from some of these cases, including the risks of post-discharge pulmonary embolism (see case 1, page 50), aspiration (see case 2, page 51) and stroke.

CASE 1: POST DISCHARGE PULMONARY EMBOLISM

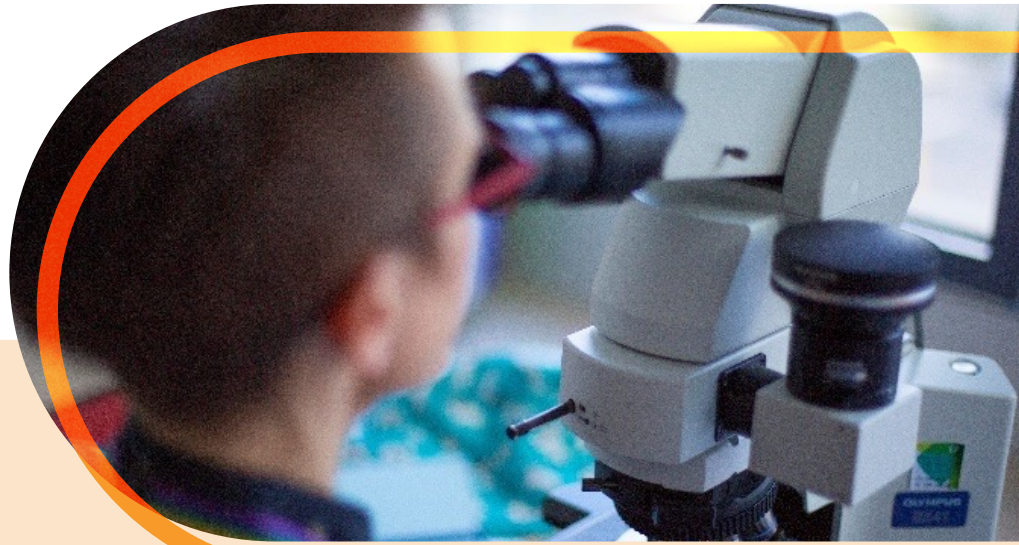
An elderly man presented acutely to the emergency department with urinary retention. Investigations revealed a large, distended bladder due to an enlarged prostate. An indwelling urinary catheter was successfully inserted. A few days later he underwent an uncomplicated bipolar transurethral resection of the prostate (TURP) for under spinal anaesthesia. He made good recovery on the ward following the procedure and was discharged a few days later.

A week after the procedure, he developed a cough and dizziness while in his garden and had to be assisted back to the house. He then suddenly became unresponsive. Cardiopulmonary resuscitation was attempted by attending paramedics but was unsuccessful.

The death was reported to the coroner and the body was transported to VIFM. SARS-CoV-2 (COVID-19) screening prior to the TURP and following his death was negative. The post mortem CT did not demonstrate an acute cause of death and there was no evidence of overt internal haemorrhage, perforation of lung infection. He subsequently underwent an autopsy which revealed massive pulmonary thromboembolism due to deep vein thrombosis. There was no evidence of surgical complications of the procedure.

Lesson

Major surgery is a risk factor for veno-thromboembolism, but a wide range of other factors augment its risk including comorbidities, hereditary conditions, and a history of previous thromboembolism. The case was therefore referred to the VIFM Family Liaison Nurse specialists for follow up.



CASE 2: POST DISCHARGE ASPIRATION

A man in his mid-seventies underwent a colorectal resection for a rectal cancer. He also had a refunctioning loop ileostomy performed, given he had some significant comorbidities that might have compromised anastomotic healing.

Some months later, following radiological and sigmoidoscopic demonstration of a patent and healed anastomosis, he underwent a closure of his loop ileostomy. He was discharged home on the third day after this procedure.

The treating unit assessed his postoperative recovery to be progressing well, his bowels were working, he had no pain, nor was his abdomen distended. Tragically, two days after discharge he felt nauseated and vomited, and later his wife found him dead. VIFM post-mortem later confirmed the cause of death as 'aspiration pneumonia with aspirated material in the right lower lobe' and a blood clot (but no leak) possibly causing some bowel obstruction where the ileostomy had been closed. The health service did not become aware of the death until notified by the coroner.

Lesson

Review of the case at the health service level found no deficiencies of care but surgical teams were made aware of this tragic outcome, as well as the need to communicate with the patient and family as to what to do if experiencing post discharge vomiting and/or distension. Aspiration is a life-threatening risk in patients with an ileus, a bowel obstruction or undergoing a procedure with fluid in their stomach.

THE AUSTRALIAN AND NEW ZEALAND HIP FRACTURE REGISTRY (ANZHFR)

The Hip Fracture Care Clinical Standard was released in 2016 by the Australian Commission on Safety and Quality in Health Care (ACSQHC) in collaboration with the Health Quality and Safety Commission New Zealand. The 2021 report is based on 86 hospitals that contributed patient level data, while all 117 hospitals asked provided facility level data.

The registry now has near complete coverage of hospitals in Queensland, Western Australia, South Australia and Tasmania. Victoria still lags behind other states with only 12 of 23 public hospitals contributing data to the registry. Participating Victorian hospitals registered 2043 hip fractures in 2020, fewer than half those registered by NSW.

VPCC believes all Victorian hospitals managing hip fractures should participate and so be incentivised to meet the care standards and KPIs.

Victoria can do better with the management of our patients with hip fractures.

The risk of falls and hip fractures increases with age. ANZHFR includes more than 65,000 patients in the last six years who have presented to hospitals in Australia and New Zealand with a fractured neck of femur.²⁷ It is designed to allow hospitals to audit their care against indicators of safety and high-quality care. It measures a series of agreed clinical quality standards, addressing the care that should be provided to older people admitted with a hip fracture.

Victorian figures were further investigated, and it was found that approximately 35% of patients were delayed greater than 48 hours due to a lack of theatre availability. ANZHFR 2021 report provides further in-depth data on mortality from hip fracture, risk-adjusted for age, sex, pre-morbid level of function (mobility), fracture type, residence type and ASA Physical Status Classification System.

Although follow up data is limited, in Australia and New Zealand only some 43% of patients with hip fractures return to their pre-fracture mobility. In 2020, 68% of Australian patients with a hip fracture living in a private residence had returned to their residence within 120 days of discharge (note: 18% of the data on residence was missing).



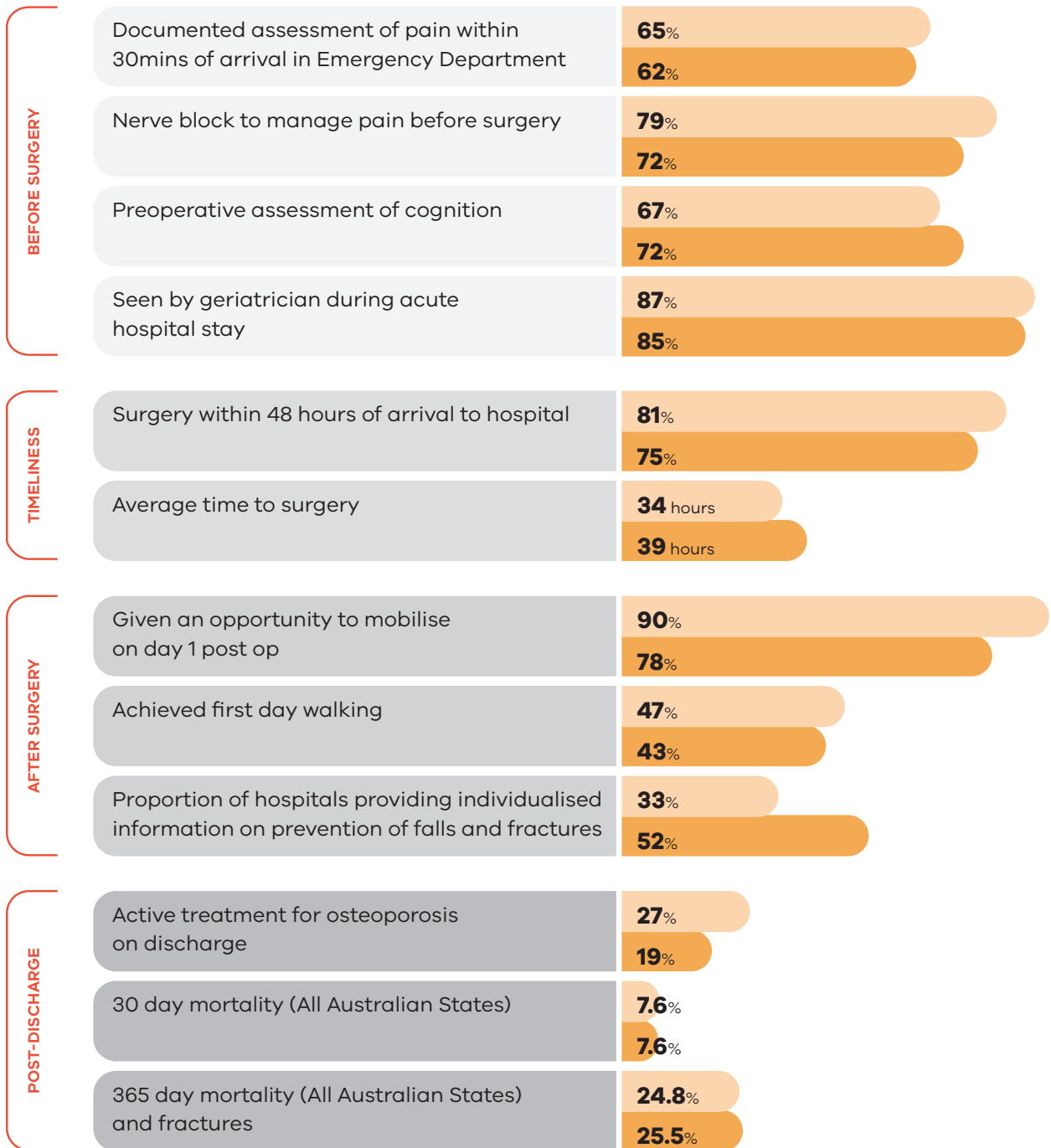
The Hip Fracture Care Clinical Care Standard²⁸ has seven quality statements (from which the clinical quality indicators are derived):

- **Care at presentation:** A patient presenting to hospital with a suspected hip fracture receives care guided by timely assessment and management of medical conditions, including diagnostic imaging, pain assessment and cognitive assessment.
- **Pain Management:** A patient with a hip fracture is assessed for pain at the time of presentation and regularly throughout their hospital stay and receives pain management including the use of multimodal analgesia, if clinically appropriate.
- **Orthogeriatric model of care:** A patient with a hip fracture is offered treatment based on an orthogeriatric model of care as defined in the Australian and New Zealand Guideline for Hip Fracture Care.
- **Timing of surgery:** A patient presenting to hospital with a hip fracture, or sustaining a hip fracture while in hospital, receives surgery within 48 hours if no clinical contraindication exists and the patient prefers surgery.
- **Mobilisation and weight bearing:** A patient with a hip fracture is offered mobilisation without restrictions on weightbearing the day after surgery and at least once a day thereafter, depending on the patient's clinical condition and agreed goals of care.
- **Minimising risk of another fracture:** Before a patient with a hip fracture leaves hospital, they are offered a falls and bone health assessment and a management plan based on this assessment to reduce the risk of another fracture.
- **Transition from hospital care:** Before a patient leaves hospital, the patient and their carer are involved in the development of an individualised care plan that describes the patient's ongoing care and goals of care after they leave hospital. The plan is developed collaboratively with the patient's general practitioner.

KEY PERFORMANCE INDICATOR SUMMARY.

Australian and New Zealand Performance

Victorian Performance



THE AUSTRALIA AND NEW ZEALAND EMERGENCY LAPAROTOMY AUDIT – QUALITY IMPROVEMENT (ANZELA-QI)

ANZELA-QI is based on the UK's National Emergency Laparotomy Audit (NELA), which has reported a reduced mortality (11.8% to 8.7%) and length of stay (19.2 to 15.1 days) over a seven-year period. ANZELA-QI has recently published its three-year report based on registry data from 2018 to 2021.²⁹ There has been a significant fall in risk adjusted mortality from 8.2% to 6.4% over the period, with a reduction in length of stay from 17.1 to 15.9 days.

Both NELA and ANZELA-QI promote CCS that can be measured as KPIs (see opposite). There is considerable variation between reporting hospitals, and there are still Victorian hospitals performing emergency laparotomies which do not contribute to ANZELA-QI and may therefore not be aware of the care standards.

VPCC has written to the ACSQHC requesting a clinical care standard be developed for emergency laparotomy (EL), similar to those for hip fractures, colonoscopy and venous thromboembolism. We are hopeful such a standard can be developed over the next couple of years which would not only have the potential to reduce the mortality from EL, but also improve the lives of survivors.

From July 2016 to May 2020, the average mortality rate for EL was 7.1%. The need for an emergency laparotomy was also the condition with the highest mortality reported by VASM in 2020. In 2021, VAHI, Commonwealth Scientific and Industrial Research Organisation (CSIRO) and VPCC worked together on reporting risk-adjusted outcomes from EL using administrative data. A risk-adjustment model was developed, which should enable further benchmarking of EL outcomes and health service performance in the future (similar to current hip fracture mortality reporting).

The administrative data also enabled 90- and 365-day mortality to be reported. Although 30-day, 90-day and 365-day mortality is influenced by the condition being treated and the procedure performed, the one-year mortality following EL for most diagnoses is more than double that of the 30-day or in-hospital mortality.

One of the most important before surgery KPIs is preoperative assessment of risk, shared decision making and documentation of goals of management. ANZELA-QI promotes consultant surgeon and anaesthetist engagement in decision making and promotes their participation in the operating theatre.

Postoperatively, management in ICU of high-risk patients and review by a specialist physician or geriatrician is critical to both short- and longer-term outcomes. Medical input to these high-risk surgical patients is still relatively limited in many hospitals except Logan hospital in Queensland, which has developed one of the best models of care for others to adopt.³⁰

KEY PERFORMANCE INDICATOR SUMMARY

TABLE 5: PROPORTIONS OF PATIENTS MEETING STANDARDS NATIONALLY AND PROPORTIONS OF HOSPITALS RATED ON THE RED, AMBER, GREEN, GREY (RAGG) ANZELA-QI PATIENT REPORTS FOR THE KEY STANDARDS AND SUPPORTING PROCESS MEASURES

KEY STANDARDS*	KEY PERFORMANCE INDICATOR	PERCENTAGE OF HOSPITALS ACHIEVING RAGG STANDARDS BY ANZELA-QI	NUMBER OF HOSPITALS GREEN RATED (TOTAL HOSPITALS = 24)
Hospitals that admit patients as emergencies must have access to CT scanning 24 hours per day	Proportion of all emergency laparotomy patients who received a preoperative CT scan which was reported on by a consultant radiologist preoperatively (KPI 1)	68.1% n = 1747	5
An assessment of mortality risk should be made explicit to the patient and recorded clearly on the consent form and in the medical records	Proportion of patients with risk assessment documented preoperatively (KPI 2)	45.0% n = 1299	1
Hospitals should ensure theatre access matches need and ensure prioritisation of access is given to emergency surgical patients ahead of elective patients whenever necessary	Proportion of patients arriving in theatre within a time appropriate for the urgency of surgery (KPI 3)	59.7% n = 1351	0
Each high-risk case should have the active input of a consultant surgeon/ anaesthetist	Proportion of patients with a calculated preoperative risk of death \geq 5% for whom both a consultant surgeon and consultant anaesthetist were present in theatre (KPI 4)	75.2% n = 445	7
	Proportion of patients with a calculated preoperative risk of death \geq 5% for whom a consultant surgeon was present in theatre (KPI 5)	84.1% n = 498	10

KEY STANDARDS*	KEY PERFORMANCE INDICATOR	PERCENTAGE OF HOSPITALS ACHIEVING RAGG STANDARDS BY ANZELA-QI	NUMBER OF HOSPITALS GREEN RATED (TOTAL HOSPITALS = 24)
(cont.)	Proportion of patients with a calculated preoperative risk of death $\geq 5\%$ for whom a consultant anaesthetist was present in theatre (KPI 6)	90.4% n = 535	14
Highest-risk patients should be admitted to critical care	Proportion of patients with a preoperative risk of death $\geq 10\%$ who were directly admitted to critical care postoperatively (KPI 7)	69.6% n = 296	8
Each patient over the age of 65 should have multidisciplinary input that includes early involvement of geriatrician teams	Proportion of patients age 65 years or over who were assessed by a specialist in gerontology (KPI 8)	17.7% n = 271	1

Notes:

* Key standards used here have been based on NELA's standard of care
n = number of cases meeting the KPI

Green: standard met by greater than or equal to 80% of patients

Amber: standard met by 50–79% of patients

Red: standard met by less than 50% of patients

REFERENCES

- ¹ Australian Commission on Safety and Quality in Health Care (2021) [Hospital-acquired complications \(HACs\)](#), ACSQHC website.
- ² Shah R, Attwood K, Arya S, Hall DE, Johanning JM, Gabriel E, Visioni A, Nurkin S, Kukar M, Hochwald S, Massarweh NN (2018) 'Association of Frailty With Failure to Rescue After Low-Risk and High-Risk Inpatient Surgery', *JAMA Surgery*, 16;153(5):e180214, [https://doi: 10.1001/jamasurg.2018.0214](https://doi.org/10.1001/jamasurg.2018.0214), PMID: 29562073, PMCID: PMC5875343.
- ³ Brown WA, Ahern S, MacCormick AD, Reilly JR, Smith JA, Watters DA (2022) 'Clinical quality registries: urgent reform is required to enable best practice and best care', *ANZ Journal of Surgery*, [https://doi: 10.1111/ans.17438](https://doi.org/10.1111/ans.17438), Epub ahead of print, PMID: 35040551.
- ⁴ Department of Health and Human Services (2016) [Targeting Zero](#), DHHS website.
- ⁵ Heiden BT, Kozower BD (2022) 'Keeping a Safe Distance from Surgical Volume Standards', *Journal of Clinical Oncology*, 24:JCO2102875, [https://doi: 10.1200/JCO.21.02875](https://doi.org/10.1200/JCO.21.02875), Epub ahead of print, PMID: 35073172.
- ⁶ NHS, [Getting It Right First Time \(GIRFT\)](#), GIRFT website.
- ⁷ Watters DA, Foran P, McKinley S, Campbell G (2021) 'Clearing the air on surgical plume', *ANZ Journal of Surgery*, 92(1-2), [https://doi:10.1111/ans.17340](https://doi.org/10.1111/ans.17340), PMID: 34724305.
- ⁸ Safer Care Victoria (2021) [Alert: Use of gabapentinoids in combination with opioids](#), SCV website.
- ⁹ Australian and New Zealand College of Anaesthetists & Faculty of Pain Medicine (2022) [PG68\(A\) Living guidance: Surgical patient safety in relation to COVID-19 infection and vaccination](#), ANZCA website.
- ¹⁰ Rowe, Stacey L. and Leder, Karin and Dyson, Kylie and Sundaresan, Lalitha and Wollersheim, Dennis and Lynch, Brigid M. and Abdullahi, Ifrah and Cowie, Benjamin C. and Stephens, Nicola and Nolan, Terry and Sullivan, Sheena and Sutton, Brett and AC, Cheng, Complications Following SARS-CoV-2 Infection in Victoria, Australia: A Record Linkage Study. Available at SSRN: <https://ssrn.com/abstract=4025054> or <http://dx.doi.org/10.2139/ssrn.4025054>.
- ¹¹ Australian and New Zealand College of Anaesthetists & Faculty of Pain Medicine (2021) [The Perioperative Care Framework](#), ANZCA website.
- ¹² Department of Health (2020) [Maximising the value of Australia's Clinical Quality Outcomes Data. A national strategy for clinical quality registries and virtual registries 2020-2030](#), Department of Health website.
- ¹³ Therapeutic Goods Administration (2022) [Patient information material for implantable medical devices](#), TGA website.
- ¹⁴ Galiabovitch E, Hansen D, Retegan C, McCahy P (2020) 'Urinary tract stone deaths: data from the Australian and New Zealand Audits of Surgical Mortality', *BJU International*, 126(5):604-609, [https://doi:10.1111/bju.15171](https://doi.org/10.1111/bju.15171).
- ¹⁵ Centre For Applied Resilience in Healthcare (n.d.) [Safety I And Safety II](#), CARE website, accessed 14 February 2022.
- ¹⁶ Provan DJ, Woods DD, Dekker SWA, Rae AJ (2020) 'Safety II professionals: How resilience engineering can transform safety practice', *Reliability Engineering & System Safety*, 195:106740, <https://doi.org/10.1016/j.res.2019.106740>.
- ¹⁷ Queensland Health (n.d.) [Difficult Airway Alert](#), Queensland Health website, accessed 14 February 2022.

- ¹⁸ Cook TM, MacDougall-Davis SR (2012) 'Complications and failure of airway management', *British Journal of Anaesthesia* 109(suppl_1):i68-i85.
- ¹⁹ Cook, T.M. (2018) 'Strategies for the prevention of airway complications – a narrative review', *Anaesthesia*, 73: 93-111, <https://doi.org/10.1111/anae.14123>.
- ²⁰ Safer Care Victoria (2019) [Victorian Consultative Council on Anaesthetic Mortality and Morbidity triennial report 2015-17](#), SCV website.
- ²¹ Lundstrøm LH, Møller AM, Rosenstock C, Astrup G, Gätke MR, Wetterslev J (2009) 'A documented previous difficult tracheal intubation as a prognostic test for a subsequent difficult tracheal intubation in adults', *Anaesthesia*, 64(10):1081-8.
- ²² Crawley S, Dalton A (2014) 'Predicting the difficult airway', *BJA Education*, 15(5):253-7.
- ²³ Schaeuble JC, Caldwell JE (2009) 'Effective Communication of Difficult Airway Management to Subsequent Anesthesia Providers', *Anesthesia & Analgesia*, 109(2).
- ²⁴ Holt N, Downey G, Naughton M (2019) 'Perioperative considerations in the management of obstructive sleep apnoea', *Medical Journal of Australia*, 211(7), <https://doi:10.5694/mja2.50326>.
- ²⁵ National Institute for Health and Care Excellence (2021) [Obstructive sleep apnoea/hypopnea syndrome and obesity hypoventilation syndrome in over 16s](#), NICE website.
- ²⁶ Department of Health, [Overview of the Commonwealth Qualified Privilege Scheme](#), Department of Health website.
- ²⁷ Australian and New Zealand Hip Fracture Registry, <https://anzhfr.org>, ANZHFR website.
- ²⁸ Australian Commission on Safety and Quality in Health Care (2016), [Hip Fracture Care Clinical Care Standard](#), ACSQHC website.
- ²⁹ Aitken R James, Griffiths B, Van Acker J, O'Loughlin E, Fletcher D, Treacy JP, Watters D, Babidge WJ (2021) 'Two-year outcomes from the Australian and New Zealand Emergency Laparotomy Audit-Quality Improvement pilot study', *ANZ Journal of Surgery*, 91(12):2575-2582, [https://doi: 10.1111/ans.17037](https://doi:10.1111/ans.17037), PMID: 34184372.
- ³⁰ Fleury AM, McGowan B, Burstow MJ, Mudge AM (2020) 'Sharing the helm: medical co-management for the older surgical patient', *ANZ Journal of Surgery*, 90(11):2357-2361, [https://doi: 10.1111/ans.16347](https://doi:10.1111/ans.16347), PMID: 33000541.

APPENDICES

APPENDIX 1:

VPCC AND SUBCOMMITTEE MEMBERS

VPCC members

- David Watters (Chairperson)
- Andrea Kattula (Deputy Chairperson)
- Allison Evans
- Denice Spence (consumer representative)
- Graeme Campbell
- Liat Watson (consumer representative)
- Marinis Pirpiris
- Paula Foran
- Phillipa Hore
- Andrew Jeffreys
- David Story
- Heinrich Bouwer
- Rebecca Donald
- Wendy Brown
- Fiona Brew
- Philip McCahy

Anaesthetic subcommittee members

- Andrea Kattula (Chairperson)
- Nam Le (ex officio – ANZCA VRC)
- David Watters
- Anna MacLeod
- Annie McPherson
- Graeme Campbell
- Justin Nazareth
- Paula Foran
- Philip McCahy
- Sharryn McKinley
- Tim Coulson
- Andrew Jeffreys
- Ben Slater
- David Beilby
- Heinrich Bouwer

Surgical subcommittee members

- Wendy Brown (Chairperson)
- Matthew Hadfield (ex officio - VSC RACS)
- Claudia Retegan
- Denice Spence (consumer representative)
- Julian Smith
- Liat Watson (consumer representative)
- Marinis Pirpiris
- Michael Homewood
- Patrick Lo
- Phillipa Hore
- Tony Gray
- David Watters
- Rebecca Donald
- Wanda Stelmach

SCV support

- Maryjane Tattersall
- Joanna Gaston
- Gemma Wills
- Shirin Anil

APPENDIX 3:

PERIOPERATIVE CARDIOVASCULAR EVENTS

Admission details

UR: _____ DOB: _____

Name: _____ Sex: _____

Initial surgery location (hospital): _____

Initial surgery admitting unit: _____

Readmission (if occurred) location: _____

Readmission unit: _____

Date of admission: _____ Date of discharge: _____

Procedure and event details

Surgical procedure description and speciality: _____

Timing of MI relative to index procedure (days and hours after): _____ Days _____ Hours

ASA classification: _____ Duration of procedure (mins): _____

Preoperative risk and management

Cardiac risk (as per revised cardiac risk index, tick all that apply):

- High risk surgery (major intracavity, suprainguinal vascular)
- History of ischaemic heart disease (previous MI, nitrate use, Q waves on ECG, chest pain to be consider ischaemic, positive exercise test)
- History of CCF (pulmonary oedema, CXR showing pulmonary vascular redistribution, PND)

- History of cerebrovascular disease
- Preoperative treatment with insulin
- Preoperative creatinine >2mg/dL/176.8umol/L

Known Previous stent:

Type: Drug-eluting: (circle) Y / N

Timing (approx. years/days prior to surgery):

_____ Days _____ Hours

APPENDIX 3:

ANTIPLATELET/ANTICOAGULANT MEDICATIONS

(tick if normal medication and give timing of last dose prior to surgery):

- Clopidogrel: last dose timing
(days/hrs prior to surgery) _____ Days _____ Hours
- Aspirin: last dose timing
(days/hrs prior to surgery) _____ Days _____ Hours
- Any other antiplatelet/anticoagulant:
type and last dose timing
(days/hrs prior to surgery): _____ (type) _____ Days _____ Hours

OTHER PREOPERATIVE CVS MEDICATIONS

(tick if taking and give timing of last dose prior to surgery):

- ACE-i/ARB _____ Days _____ Hours
- Beta blocker _____ Days _____ Hours
- Statin _____ Days _____ Hours

Preoperative plans and instructions regarding cardiovascular medications/antiplatelet agents/anticoagulants documented: Y / N

If yes, were the preoperative instructions followed: Y / N / unknown

Reviewed by cardiologist prior to procedure within 3 months of surgery: Y / N

Reviewed by/discussed with cardiologist specifically in relation to planned surgery: Y / N / unknown

Most recent HbA1c: _____

Presenting signs and symptoms of mi:

Symptoms/signs (tick all that apply):

- Chest pain
- Syncope/collapse
- Dyspnoea
- Hypotension
- Cardiac arrest
- Other/Non-specific
(describe): _____

ECG changes (tick all that apply):

- ST depression
- ST elevation
- Dysrhythmia
- T wave changes
- Other
(describe): _____

APPENDIX 3:

Investigations and management:

Troponin - type and peak level (ng/L): _____

Review by cardiologist: Y / N

Echo: Y / N

If echo, new regional wall motion abnormalities: Y / N

Angiogram during admission: Y / N

Cardiovascular medications changed: Y / N

If new cardiovascular medications started please list below:

Required ICU/coronary care unit admission: Y / N (If yes, number of days): _____ Days

Outcomes

Died during admission: Y / N

If discharged – cardiovascular follow-up plan documented: Y / N

Discussed in M&M: Y / N

If yes, which M&M (eg. surgical, anaesthesia...): _____

Potentially modifiable factors: Y / N

If yes, please describe factors: _____

Other comments: _____

APPENDIX 4:

PERIOPERATIVE MYOCARDIAL INFARCTION REVIEW TEMPLATE

Admission details

UR: _____ DOB: _____

Name: _____ Sex: _____

Initial surgery location (hospital): _____

Initial surgery admitting unit: _____

Readmission (if occurred) location: _____

Readmission unit: _____

Date of admission: _____ Date of discharge: _____

Procedure and event details

Surgical procedure description and speciality: _____

Timing of MI relative to index procedure (days and hours after): _____ Days _____ Hours

ASA classification: _____ Duration of procedure (mins): _____

Preoperative risk and management

Cardiac risk (as per revised cardiac risk index, tick all that apply):

- High risk surgery (major intracavity, suprainguinal vascular)
- History of ischaemic heart disease (previous MI, nitrate use, Q waves on ECG, chest pain to be consider ischaemic, positive exercise test)
- History of CCF (pulmonary oedema, CXR showing pulmonary vascular redistribution, PND)

- History of cerebrovascular disease
- Preoperative treatment with insulin
- Preoperative creatinine >2mg/dL/176.8umol/L

Known Previous stent:

Type: Drug-eluting: (circle) Y / N

Timing (approx. years/days prior to surgery):

_____ Days _____ Hours

APPENDIX 4:

ANTIPLATELET/ANTICOAGULANT MEDICATIONS

(tick if normal medication and give timing of last dose prior to surgery):

- Clopidogrel: last dose timing
 (days/hrs prior to surgery) _____ Days _____ Hours
- Aspirin: last dose timing
 (days/hrs prior to surgery) _____ Days _____ Hours
- Any other antiplatelet/anticoagulant:
 type and last dose timing
 (days/hrs prior to surgery): _____ (type) _____ Days _____ Hours

OTHER PREOPERATIVE CVS MEDICATIONS

(tick if taking and give timing of last dose prior to surgery):

- ACE-i/ARB _____ Days _____ Hours
- Beta blocker _____ Days _____ Hours
- Statin _____ Days _____ Hours

Preoperative plans and instructions regarding cardiovascular medications/antiplatelet agents/ anticoagulants documented: Y / N

If yes, were the preoperative instructions followed: Y / N / unknown

Reviewed by cardiologist prior to procedure within 3 months of surgery: Y / N

Reviewed by/discussed with cardiologist specifically in relation to planned surgery: Y / N / unknown

Most recent HbA1c: _____

Presenting signs and symptoms of mi:

Symptoms/signs (tick all that apply):

- Chest pain
- Syncope/collapse
- Dyspnoea
- Hypotension
- Cardiac arrest
- Other/Non-specific
 (describe): _____

ECG changes (tick all that apply):

- ST depression
- ST elevation
- Dysrhythmia
- T wave changes
- Other
 (describe): _____

APPENDIX 4:

Investigations and management:

Troponin - type and peak level (ng/L): _____

Review by cardiologist: Y / N

Echo: Y / N

If echo, new regional wall motion abnormalities: Y / N

Angiogram during admission: Y / N

Cardiovascular medications changed: Y / N

If new cardiovascular medications started please list below:

Required ICU/coronary care unit admission: Y / N (If yes, number of days): _____ Days

Outcomes

Died during admission: Y / N

If discharged – cardiovascular follow-up plan documented: Y / N

Discussed in M&M: Y / N

If yes, which M&M (eg. surgical, anaesthesia...): _____

Potentially modifiable factors: Y / N

If yes, please describe factors: _____

Other comments: _____

APPENDIX 5:

VENOUS THROMBOEMBOLISM REVIEW TEMPLATE

Admission details

UR: _____ DOB: _____

Name: _____ Sex: _____

Initial surgery location (hospital): _____

Initial surgery admitting unit: _____

Readmission (if occurred) location: _____

Readmission unit: _____

Date of admission: _____ Date of discharge: _____

VTE prevention Standard risk assessment

VTE risk assessment documented? Y / N

Documented VTE plan in the notes? Y / N

Plan discussed with patient? Y / N / unknown

VTE risk factors and contraindications

Surgical procedure description and speciality: _____

ASA classification: _____ Duration of procedure (mins): _____

APPENDIX 5:

ADDITIONAL RISK FACTORS

(tick all that apply):

- | | |
|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Previous VTE | <input type="checkbox"/> Oestrogen containing HRT/oral contraceptive use (within 4 weeks) |
| <input type="checkbox"/> Diagnosed thrombophilia | <input type="checkbox"/> Heart failure or recent MI (<6 weeks) |
| <input type="checkbox"/> Active cancer (except skin lesions) | <input type="checkbox"/> Fibrinogen > 4g/l or platelets > 350*10 ⁹ /l |
| <input type="checkbox"/> Pregnancy and puerperium (within 6 weeks) | <input type="checkbox"/> Other |
| <input type="checkbox"/> Prolonged immobility (>4 days) | (describe): _____ |

MECHANICAL PROPHYLAXIS CONTRAINDICATION

(Describe): _____

Weight (kg): _____

Height (m): _____

PHARMACOLOGICAL PROPHYLAXIS CONTRAINDICATION OR COMPLICATING FACTOR

(tick all that apply):

- | | |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Inherited or acquired bleeding disorders (please describe) | <input type="checkbox"/> Other medications that may affect clotting (other anticoagulants) |
| <input type="checkbox"/> Severe platelet function disorder or thrombocytopaenia (<50 x 10 ⁹ /l) | <input type="checkbox"/> Severe renal dysfunction (eGFR <30) |
| <input type="checkbox"/> Recent CNS bleeding or CNS surgery (within 6 weeks) or risk of CNS bleeding | <input type="checkbox"/> Neuraxial blockade (spinal or epidural) |
| <input type="checkbox"/> Other perceived excessive surgical bleeding risk | <input type="checkbox"/> GI tract bleeding (active) |
| | <input type="checkbox"/> Other |
| | (describe): _____ |

APPENDIX 5:

VTE prevention methods used

MECHANICAL

Thromboembolic deterrent stockings (TEDS): Y / N / unknown

Sequential compression devices (SCD) intraop and while immobile: Y / N / unknown

PHARMACOLOGICAL

LMWH:

Preoperatively: Y / N

Timing if started intra or postoperatively (in hours from start of surgery):

Duration post op (days):

Dose per day:

Any missed doses: Y / N (reason if yes)

Unfractionated Heparin:

Preoperatively: Y / N

Timing if started intra or postoperatively (in hours from start of surgery):

Duration post op (days):

Dose per day:

Any missed doses: Y / N (reason if yes)

Rivaroxaban, dabigatran, apixaban:

Preoperatively: Y / N

Timing if started intra or postoperatively (in hours from start of surgery):

Duration (days):

Any missed doses: Y / N (reason if yes)

Warfarin:

Preoperatively: Y / N

Timing if started intra or postoperatively (in hours from start of surgery):

Duration (days):

Any missed doses: Y / N (reason if yes)

Target INR reached on post-operative day number:

Any subsequent sub-target INRs: Y/N

APPENDIX 5:

Ongoing postoperative management

VTE plan reassessed at seven days? Y / N / unknown

Discharged on anticoagulant: Y / N

Duration of prophylaxis post discharge: Days

VTE prevention discharge plan documented? Y / N / unknown

Patient informed of discharge plan? Y / N / unknown

Ongoing clinical provider informed? Y / N / unknown

Initial perioperative team aware of VTE Y / N

Discussed in M&M Y / N

If yes, which M&M (e.g. surgical, anaesthesia):

Potentially modifiable factors: Y / N

If yes, please describe:

References

Wickham, N., Gallus, A. S., Walters, B. N. J., Wilson, A., the NHMRC VTE Prevention Guideline Adaptation Committee. (2012). Prevention of venous thromboembolism in patients admitted to Australian hospitals: summary of National Health and Medical Research Council clinical practice guideline. *Internal Medicine Journal*, 42(6), 698–708. <http://doi.org/10.1111/j.1445-5994.2012.02808.x>

Chahal, R., Alexander, M., Yee, K., Jun, C. M. K., Dagher, J. G., Ismail, H., et al. (2020). Impact of a risk-stratified thromboprophylaxis protocol on the incidence of postoperative venous thromboembolism and bleeding. *Anaesthesia*, 90, 678–11. <http://doi.org/10.1111/anae.15077>

Australian Commission on Safety and Quality in Health Care. Venous Thromboembolism Prevention Clinical Care Standard January 2020, 1–56.

APPENDIX 6:

GOOD TRANSFER PRACTICE

TRANSFERRING FOR ESCALATION OF CARE CHECKLIST

Who and where?

- Patient identifier
- Age, Gender and other relevant demographics
- Referring hospital
- Receiving hospital

Transfer agreement and decisions

- Time and date of referrer /accepter interaction
- Treatment received at referring hospital
- Who assessed/treated the patient in person at referring hospital (most senior)?
- Referrer was consultant? (if not what grade of referrer)
- Acceptor was consultant? (if not what grade of acceptor)
- Urgency of transfer (ASAP, 6 hours, 24 hours, 24-48 hrs, when bed available)
- Treatment planned/expected prior to transfer at receiving hospital
- Condition of patient (vital signs, sepsis, organ dysfunction)
- Need for source control, arresting bleeding, decompressing compartments prior to sending?

The transfer

- Distance (km)
- Time of departure from sending hospital
- Time of arrival at receiving hospital
- Mode of transport (air, sea, road – ambulance/ taxi)
- During transfer care anticipated: (Ambulance, Medical escort required Yes/No, ICU)
- During transfer care received/events managed
- Condition of patient on arrival (vital signs, sepsis, organ dysfunction)
- Was there delay associated with this transfer? If so, for how long and impact on patient

Treatment at receiving hospital

- ICU yes/no and days in ICU
- Operation (s)
- Conditions managed (diagnoses)
- Complications
- Length of Stay
- Date of discharge
- Outcome
- Discharge destination (home/sending hospital/ rehab/ etc)

APPENDIX 6:

Documentation

Were all clinically relevant details documented and sent with patient?

If not, what was missing that should be provided in future?

Was a discharge summary received by referring clinician and by referring health service?

Did the discharge summary contain a clear plan of follow up and responsibilities?

Were there any stents, filters or other devices inserted that need to be removed?

If yes, did the discharge summary state who/ where and when the device needs to be removed?

Date of Audit and Peer review

Issues to be raised with clinical governance at sending hospital - including whom and date informed

Issues to be raised with clinical governance at receiving hospital - including whom and date informed

APPENDIX 7:

ANAESTHESIA-RELATED MORBIDITY, MORTALITY AND NEAR-MISS EVENTS

Perioperative Quality And Safety Monitoring In A Covid-19 Context – A Consultation Document

KEY POINTS

The COVID-19 pandemic has resulted in many changes to usual perioperative processes of care.

These changes highlight the importance of having in place comprehensive, coordinated, efficient systems and processes to monitor and address the safety and quality of perioperative care, including the capacity to identify unintended consequences of changes to care processes.

This document will assist clinicians and health services to develop frameworks to comprehensively monitor and review anaesthesia-related morbidity, mortality and near-miss events.

Its goal is to enable a consistent approach to monitoring perioperative safety and quality across public/private, and rural/regional/metropolitan settings, improving perioperative care for all surgical patients.

There will be a range of challenges and barriers to achieving consistent perioperative safety monitoring in different contexts and locations. We hope this document will encourage discussion about these challenges to explore how a more consistent approach can be effectively achieved.

Clinician-led reporting and review of safety incidents is fundamental to an effective process.

BACKGROUND

Measures of quality in healthcare tend to focus on reliability and efficiency of routine care, and identification of variance from expected (evidence-based) care.¹ That is, ensuring we routinely and consistently do things well.

Measures of safety (absence of avoidable harm) in healthcare are more complex.¹ A comprehensive understanding of issues affecting patient safety depends on integrating and analysing data from multiple sources, including clinical audits, incident reporting systems and administrative data sets. As each data source has particular strengths, challenges and limitations², a multi-faceted approach is important.

THE ROLE OF INCIDENT REPORTING

Learning from adverse events and near-miss events is particularly relevant with a new or rapidly changing context, such as that presented by COVID-19. Significant events may be infrequent at individual department or health service level (particularly in small organisations). However, when individual events or issues are aggregated at a state level, emerging risks may become apparent and can be communicated in a timely way to clinicians, other health services and the broader community. These types of issues may not yet be apparent from other data sources.

IMPORTANCE OF NEAR-MISS REPORTING

Near-misses involve events that had potential to cause significant harm but did not result in harm (outcome is the only difference from an adverse event)³. Near-miss reporting is particularly important in anaesthesia, as it offers a unique opportunity to identify and analyse 'recovery strategies' (how an error was recognised before harm occurred)³ in a highly complex environment where human factors engineering design is central to improving safety (for example, reducing the risk of drug administration errors).

APPENDIX 7:

A BASE FRAMEWORK FOR MONITORING AND REVIEWING ANAESTHESIA-RELATED ADVERSE EVENTS AND NEAR-MISSES

Table 1 outlines a base framework for monitoring and reviewing perioperative anaesthesia-related adverse events and near-misses based on existing structures and processes:

Column 2 outlines suggested major categories of events to include in monitoring and review:

- Anaesthesia-related deaths
- Other significant anaesthesia-related events or complications* (examples provided in **Table 2**)
- Near-miss events
- Unplanned escalation of care (including unplanned returns to theatre for anaesthesia-related problems)

Column 2 outlines these events in more detail to assist local department and clinician level reporting and review.

Column 3 highlights the role of hospital level clinical governance processes for different events.

Column 4 summarises some key roles of state-level bodies in understanding perioperative safety and quality issues.

VPCC⁴ oversees, reviews and monitors perioperative care in Victoria to improve outcomes for patients before, during and after surgery. It reviews perioperative outcomes (morbidity and mortality) from a quality improvement perspective, collating lessons from individually reported events and administrative datasets that could help improve the system of care. It also provides Victorian anaesthesia-related mortality data for ANZCA's triennial Safety of Anaesthesia reports. VPCC and its subcommittees operate under the Public Health and Wellbeing Act 2008 (Part 4 – Consultative Councils).⁵

The **VASM**⁶ is a peer review process that seeks to review all deaths associated with surgical care. It is a collaboration between the Victorian Department of Health, SCV and the RACS. VASM receives notifications of all deaths under the care of a surgeon.

SCV⁷ is the state's peak body for leading quality and safety improvement in healthcare. Its core functions include clinical excellence, patient safety, system and safety assurance, and improvement. Part of its patient safety role includes overseeing the Victorian Sentinel Events program⁸ which receives and reviews submitted RCA reports.

VAHI⁹ monitors, analyses and shares (through regular reports) safety and performance information across Victoria's health system. This includes a quarterly *Inspire* report designed to 'support clinicians to understand the performance of their health service against key measures that impact safety, quality and performance'.

Key performance measures include Hospital Acquired Complications (HACs)¹⁰ which are described in more detail below.

CHALLENGES

While this framework outlines a structure for anaesthesia-related perioperative outcome review, we recognise that many challenges exist in terms of achieving this across the state.

APPENDIX 7:

TABLE 1: A BASE FRAMEWORK FOR MONITORING AND REVIEW OF ANAESTHESIA-RELATED ADVERSE EVENTS AND NEAR-MISSES

EVENT	DEPARTMENTAL/ CLINICIAN LEVEL REVIEW ACTIVITIES	HOSPITAL LEVEL CLINICAL GOVERNANCE ACTIVITIES	STATEWIDE HEALTH SYSTEM LEVEL ACTIVITIES (VPCC/ VASM/SCV/VAHI)
<p>Anaesthesia-related deaths*</p> <p>(Ensure reportable deaths have been referred to the Coroner)</p> <p>Anaesthesia-related deaths referred to and classified by the VPCC¹ contribute to Victorian data for the ANZCA triennial Safety of Anaesthesia report.</p>	<p>Deaths where anaesthesia (local/regional/general) or sedation for a procedure has been thought to contribute to the death* (see Table 2). The death may have occurred intra-operatively or in the post-operative period.</p>	<p>Multidisciplinary review of each death, with focused discussion on avoidable deaths and cases where care could be improved.</p> <p>RCAs for sentinel events** that result in death.</p>	<p>VASM peer review of all surgical deaths.</p> <p>VPCC anaesthesia subcommittee review of referred deaths.</p> <p>SCV review of sentinel event RCAs.</p>
<p>Other significant anaesthesia-related events or complications*</p>	<p>Any event related to an anaesthetic procedure that causes a life-threatening incident, temporary or permanent disability, or significant distress* (see Table 2).</p>	<p>Case reviews for significant events/issues.</p> <p>Morbidity aggregate reports for common events and Hospital-Acquired Complications.***</p> <p>RCAs for sentinel events.**</p>	<p>VPCC anaesthesia subcommittee review of referred events.</p> <p>VAHI reporting on HACs.</p> <p>SCV review of sentinel event RCAs.</p>
<p>Near-miss events</p> <p>(Near misses can inform the health system of significant risks and identify important opportunities to improve safety)</p>	<p>Significant near miss events (events with potential to cause significant harm, that did not lead to harm).</p>	<p>Significant near miss events reported and reviewed.</p>	<p>VPCC anaesthesia subcommittee review of referred events.</p>

APPENDIX 7:

EVENT	DEPARTMENTAL/ CLINICIAN LEVEL REVIEW ACTIVITIES	HOSPITAL LEVEL CLINICAL GOVERNANCE ACTIVITIES	STATEWIDE HEALTH SYSTEM LEVEL ACTIVITIES (VPCC/ VASM/SCV/VAHI)
Unplanned escalation of care	<p>Unplanned ICU admission</p> <p>Unplanned HDU/ Coronary Care Unit admission</p> <p>Unplanned transfer to another facility</p> <p>URTT for an anaesthesia-related problem (inclusive of interventional procedures in other locations). (E.g. re-intubation; surgical airway; retained procedural material)</p>	<p>Case reviews for significant issues.</p> <p>URTT for surgical complications and unplanned ICU admissions are aggregated in health service HAC reports.</p> <p>RCAs for sentinel events.**</p>	<p>VPCC anaesthesia subcommittee review of referred events.</p> <p>VAHI reporting on HACs.</p> <p>SCV review of sentinel event RCAs</p>

* Table 2 provides examples of significant anaesthesia-related events/complications, some of which may result in death.

** Table 3 provides the list of sentinel events in Victoria (as at May 2020).

*** Table 4 provides a description of HACs.

APPENDIX 7:

TABLE 2: EXAMPLES OF SIGNIFICANT ANAESTHESIA-RELATED EVENTS/COMPLICATIONS

*EXAMPLES OF SIGNIFICANT ANAESTHESIA-RELATED EVENTS/COMPLICATIONS#
<p>This list is based on the previous VCCAMM reporting list, broader literature review and multidisciplinary VPCC discussion. Some events may also fit the current list of sentinel events in Victoria.</p> <p>#Human factors may play a role in many of these events, so are not mentioned separately</p>
Mortality/morbidity/significant near misses associated with preoperative assessment and/or management issues
Procedural errors/complications
Problems with management of the airway or ventilation
Unexpected cardiac arrest or other circulatory problems in the perioperative period
Crisis management or resuscitation
Monitoring issues (provision/complications)
Drug-related problems (adverse reactions, interactions, preparation and/or administration errors)
Blood product/fluid administration
Anaesthesia/sedation for investigational procedures or resuscitation
Perioperative pain management
Organisational issues
Work environment issues
Equipment-related problems
Anaphylaxis
Awareness during general anaesthesia
Neurological complications (e.g. procedure-related central and peripheral nerve injury, hypoxic brain injury, stroke)
Multifactorial perioperative major complications (perioperative significant organ injury e.g. MI, severe Acute Kidney Injury (AKI) requiring renal replacement therapy, pulmonary embolism)

APPENDIX 7:

TABLE 3: SENTINEL EVENTS LIST IN VICTORIA

**SENTINEL EVENTS LIST IN VICTORIA¹² – VERSION 2 (FROM JULY 2019)	
1	Surgery or other invasive procedure performed on the wrong site resulting in serious harm or death
2	Surgery or other invasive procedure performed on the wrong patient resulting in serious harm or death
3	Wrong surgical or other invasive procedure performed on a patient resulting in serious harm or death
4	Unintended retention of a foreign object in a patient after surgery or other invasive procedure resulting in serious harm or death
5	Haemolytic blood transfusion reaction resulting from ABO incompatibility resulting in serious harm or death
6	Suspected suicide of a patient in an acute psychiatric unit or acute psychiatric ward
7	Medication error resulting in serious harm or death
8	Use of physical or mechanical restraint resulting in serious harm or death
9	Discharge or release of an infant or child to an unauthorised person
10	Use of an incorrectly positioned oro- or naso-gastric tube resulting in serious harm or death
11	All other adverse patient safety events resulting in serious harm or death

TABLE 4: HOSPITAL ACQUIRED COMPLICATIONS

***HOSPITAL ACQUIRED COMPLICATIONS (HACS)
More information is available from the ACSQHC HAC website

Hospital-acquired complications (HACs) refer to a nationally agreed list of 16 'high-priority complications' for which 'clinical risk mitigation strategies may reduce (but not necessarily eliminate) the risk of that complication occurring'.¹⁰ HACs are identified from coded admitted patient care data and in Victoria, are reported by VAHI in statewide quarterly Inspire reports.

APPENDIX 8:

SURGICAL MORTALITY AND MORBIDITY CLINICAL GOVERNANCE

Perioperative morbidity and mortality

This document describes what perioperative outcomes and events that are significant for surgical audit/peer review, anaesthesia mortality and morbidity (M&M) and what information should be shared for clinical governance at the health service or state level.

The table is designed to show the types of events that should be discussed at surgical M&M (Columns 1 and 2). Significant events – and those that require multidisciplinary review and offer opportunities to improve the system – should also be reported to health service/ hospital clinical governance (Column 3). Column 4 summarises how statewide clinical governance addresses the event, what needs to be reported and to which body. For example, VASM receives all notifications of mortality under the bed card of a surgeon, sentinel events and the ensuing RCA are reported to SCV and reviewed by VPCC from a quality improvement perspective. This process of collating lessons from significant events can help improve the system of care.

VAHI monitors health service KPIs such as mortality rates for fractured neck of femur, unplanned readmission rates (joint replacements and tonsillectomy) and hospital acquired complications (unplanned return to theatre is ACSQHC HAC no 4).

Protection and confidentiality of reports

The VASM process is protected by Commonwealth QP; VPCC and its subcommittees operate under the *Public Health and Wellbeing Act 2008* (Part 4 – Consultative Councils). Case reviews undertaken by VPCC and assessments under VASM are protected.

VPCC will also continue to provide Victorian anaesthesia-related mortality data for ANZCA's triennial Safety of Anaesthesia reports. In addition, VPCC greatly appreciates reports regarding anaesthesia-related morbidity to enhance its ability to identify emerging perioperative safety issues.

Principles of mortality and morbidity conduct

- Clinician engagement for the unit/service being audited or subject of M&M.
- Peer review by colleagues not involved in the care of the patient or managing the event.
- Report other craft group/specialty/procedural outcomes for particular procedures (e.g. visual acuity after cataract surgery) in addition to the major M&M or near miss events listed.
- Meeting minutes that include attendance and de-identified summary of peer review discussion.
- List of issues arising from audit/M&M reported to hospital/health service clinical governance.
- Documentation of actions/recommendations by whom and when.
- Follow-up plan for how any changes are to be implemented and monitoring for effectiveness.
- Reporting and two-way Information flow between health service clinical governance and M&M (avoid one way reporting as lack of feedback is unhelpful and disengaging).
- Encourage notification of significant issues/cases/events to VPCC/SCV/VASM that are relevant to those bodies, e.g. individual mortalities to VASM, summary reports of perioperative cardiovascular events and unplanned returns to theatre to VPCC, and anaesthesia-related morbidity and mortality reports to VPCC for review by the anaesthesia subcommittee.

APPENDIX 8:

EXAMPLES OF SIGNIFICANT EVENTS, THEIR INCLUSION IN SURGICAL OR ANAESTHESIA M&M, AND WHAT SHOULD BE REPORTED FOR CLINICAL GOVERNANCE INFORMATION OR REVIEW AT HEALTH SERVICE AND STATE LEVEL

EVENT	SURGICAL AUDIT/ PEER REVIEW/ M&M MEETINGS	CLINICAL GOVERNANCE IN HOSPITALS	VPCC/VASM/ SCV/VAHI STATEWIDE HEALTH SYSTEM
Deaths	Deaths following surgery or under bedcard of a surgeon during hospital admission or within 30 days	Multidisciplinary mortality case review of each death, with focused discussion on avoidable deaths and cases where care could be improved	All deaths peer reviewed by VASM, Anaesthesia related deaths reviewed by VPCC anaesthesia subcommittee; VPCC review of any cases with multidisciplinary issues
Unplanned return to theatre	Unplanned return to theatre within 30 days (whether before or after discharge and regardless of whether same hospital or not)	Aggregate report Individual review of issues raised by surgical peer review Correlated with failure to rescue rate	Aggregate report from health services of HAC no 4 following VPCC classification
Unplanned ICU stay	Unplanned ICU/ HDU admission/ readmission	Aggregate report, case reviews for issues	Awareness of process of review within health services
Significant near misses	Significant near misses	Significant near misses reported where multidisciplinary issues	Near misses can inform health system of opportunities to improve
Unplanned readmissions	Unplanned readmissions/ admissions to other health services within 30 days of discharge	Aggregate rates with interval review of causes and opportunities to reduce/correlated with LOS data	Unplanned readmission rates for specific conditions (VAHI)

APPENDIX 8:

EVENT	SURGICAL AUDIT/ PEER REVIEW/ M&M MEETINGS	CLINICAL GOVERNANCE IN HOSPITALS	VPCC/VASM/ SCV/VAHI STATEWIDE HEALTH SYSTEM
Interhospital transfers for increased care	Transfers out and in requiring higher level management	Case review of transfers where events occur	VPCC will review transfers from private to public requiring surgery or ICU VASM reviews transfer as a potential issue
Other significant complications	Other significant surgical complications (Clavien-Dindo ^{3,4})	Morbidity reporting, including Aggregate tables for common events and specific case reviews where there are improvement opportunities to identified within recommendations	Notification of significant events to VPCC
Perioperative cardiovascular events	Perioperative cardiovascular events (MI, CVA, PE)	Aggregate annual rates, learning from individual events through case reviews/reports	VPCC developing health service reports for local review
Surgical site infection	Surgical site infection	Aggregate reports of infection rates for monitored procedures	VICNISS review
Neurological complication	Neurological complications related to procedure or positioning	Detailed case review of event	Notification to VPCC
Extended length of stay	Patients staying more than twice expected length of stay for procedure	Health service oversight of long-staying patients and rehabilitation/HITH support	Awareness of local process taking place
Sentinel events	Wrong patient, site, side Retained materials, others Other adverse events (Cat 11)	RCA	Report to SCV and VPCC will be notified

APPENDIX 9:

ACKNOWLEDGEMENTS

VPCC proudly acknowledges Australia's Aboriginal and Torres Strait Islander peoples as the Traditional Owners and custodians of the land on which we work and live. We acknowledge and pay respect to their history, culture and Elders past and present.

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- health services
- individual practitioners
- VASM
- the Coroner's Court of Victoria
- VIFM
- SCV
- VAHI
- DH
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