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ROYAL AUSTRALASIAN COLLEGE OF SURGEONS

Review of the Victorian Audit of Surgical Mortality

FINAL REPORT

6 December 2018

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LIST OF ABBREVIATIONS

ACSQHC	Australian Commission on Safety and Quality in Health Care
AMHAC	Australian Health Ministers Advisory Council
ANZASM	Australia and New Zealand Audit of Surgical Mortality
CEC	Clinical Excellence Commission
CHASM	Combined Hospitals Audit of Surgical Mortality
CPE	Continuing Professional Education
DHHS	Department of Health and Human Services
FLA	First Line Assessment
FTE	Full Time Equivalent (staff)
QP	Qualified Privilege
RACS	Royal Australasian College of Surgeons
SCV	Safer Care Victoria
SLA	Second Line Assessment
VAHI	Victorian Agency for Health Information
VASM	Victorian Audit of Surgical Mortality
VCC	Victorian Clinical Council
VCCAMM	Victorian Consultative Council on Anesthetic Mortality and Morbidity
VMIA	Victorian Managed Insurance Authority
VSCC	Victorian Surgical Consultative Council

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Executive summary

Purpose

The current review was commissioned by VASM to determine how well audit activities were meeting the needs of different stakeholder groups and identify any improvements to better address stakeholder needs. The review process involved examination of performance data provided by VASM, a survey of surgeons participating in the audit, and interviews with a wide range of stakeholders considered to benefit from the activities undertaken by the audit. Key findings and recommendations are summarised below.

Context

VASM was established in 2007 as an educational tool for surgeons to understand preventable outcomes arising from care that may have a potential impact upon patient outcomes. The audit commenced at the same time as other audits of surgical mortality were being implemented across Australia and New Zealand. At the time of establishment each audit represented current international best practice in quality improvement for surgical care. In this context, the Department of Health and Human Services were actively interested in supporting the audit and increasing surgeon participation in clinical quality improvement initiatives.

Over the past 10 years there has been a great deal of progress in quality and safety monitoring across Victoria. One of the most significant changes during this period occurred after several neonatal deaths raised questions about the health systems capacity to successfully monitor adverse events causing harm to Victorians. In response to these events a major review recommended that a more active approach to patient safety monitoring was undertaken by the department.

Safer Care Victoria (SCV) was established to achieve this objective and minimise avoidable harm that might occur across the Victorian public health care system. A key mandate of SCV is to make better use of existing information to inform improvements in patient care – including information arising from VASM. The objectives of SCV have become the new 'lens' through which all department funding will be examined, to determine whether and to what extent ongoing investment by the Victorian government will result in improved outcomes for patients.

Alignment of VASM

Many of the core objectives of SCV are already aligned to the work of the Audit. VASM has developed successful partnerships with clinicians to review and respond to episodes of surgical mortality across the state. Areas for improvement have been identified through the VASM process and this information has been presented back to surgeons on a case-by-case basis in addition to more broadly disseminated case reports.

VASM has developed summary reports for distribution to individual health services.

Surgeons and other stakeholders recognise the achievements of VASM, particularly:

- The rigorous infrastructure for case detection and assessment that has been established and successfully maintained;
- The levels of surgeon and health service engagement that have been achieved;
- The contribution of the audit to a national infrastructure and ability to benchmark Victorian performance against other jurisdictions;
- The ongoing improvements undertaken over time to enhance the audit processes; and
- The efforts made by VASM to communicate audit findings to an increasing range of different stakeholders.

Notwithstanding these achievements, two major areas of concern have emerged in relation to the method of audit implementation, namely:

- The capacity of VASM to share more detailed information to non-surgical stakeholders; and
- The capacity of VASM to demonstrate change in areas identified to require further improvement.

These issues will need to be addressed to maintain alignment of VASM with the current objectives of the Victorian government (and maximise the potential for any ongoing funding of audit activities).

Sharing of information

Current audit processes assume that surgeon awareness of areas for potential improvement will result in changes to clinical practice. However, surgeons rarely operate in isolation. Patient management typically involves a team of professionals who may contribute to the cause and/or resolution of issues leading to potentially preventable adverse events that impact upon patients.

In the public sector, it is ultimately the hospital that is responsible for the welfare of patients. Hospitals therefore require enough information to identify areas for further investigation (of factors that surgeons may be unaware of) and/or of implementation initiatives to improve quality and safety across the organisation. To do this more effectively, health services would benefit from the findings of peer-reviews undertaken by VASM.

In this context, it is appreciated that complete de-identification of surgical cases for the purposes of reporting to health services would undermine the audit processes established by VASM. Protections must be maintained to prevent misuse of any additional information reported by surgeons (that is not already documented in patient records). Without these protections, the level of confidence in VASM would decline, undermining levels of disclosure and reflection about opportunities for practice improvement. The quality of information reported to the audit would decrease, and any potential utility of audit findings would diminish. Maintaining an appropriate level of qualified privilege is therefore critical to maintaining the integrity of VASM.

The capacity to demonstrate change

VASM stakeholders recognise that attributing change in surgical practice to any single quality and safety initiative is a challenging task. However, most stakeholders also acknowledge that a coordinated approach to identifying issues and implementing strategies is the best method of achieving improvements.

In this context, the focus shifts to creating opportunities for integrating the findings that are identified by VASM with other sources of information – rather than focusing upon the ability to demonstrate change in isolation. Public confidence is strengthened when multiple initiatives demonstrate how improvements in patient outcome are achieved. When combined with the activities undertaken by other stakeholders, a logic model for improvements that result from multiple initiatives can be developed and tested to demonstrate change.

Recommendations

Based upon key issues identified throughout the review, a number of recommendations have been provided to enhance the value of VASM to a wider range of stakeholders.

Specifically, the current review has recommended:

1. That VASM work with SCV and the department to develop appropriate qualified privilege arrangements for the sharing of information in Victoria.
2. That additional information be included in the published objectives of VASM to emphasise that:
    a. The Audit is a method of case detection to identify areas for improvement in the care delivered by health services in Victoria;
    b. The Audit recognises a range of different professionals are involved in the delivery of care to surgical patients and fosters a no-blame culture of reporting and
    c. The Audit findings are used with other information to maximise the quality and safety of health care and the outcomes experienced by patients.
3. That requirements for de-identification of hospital records are removed in order to streamline provision of information by health services to VASM, and the forwarding of information to surgeons undertaking second line assessments.
4. That VASM develop a system of identifying flags in case reports and expediting ‘flagged’ cases for more urgent review.
5. That VASM develop a method of recognising clusters of potentially preventable adverse events that are characterised by common underlying issues.
6. That VASM undertake further analysis and reporting of information about the care pathway in feedback provided to individual surgeons, hospitals and other stakeholders.
7. That surgeons are asked directly about any changes in clinical management that have been implemented (by themselves or others) in response to the outcomes of each case.
8. That all cases in which potentially preventable events are considered to have caused the death of a patient are referred for assessment by an independent panel of reviewers.
9. That reports provided by VASM to surgeons, hospitals and other stakeholders are re-structured to convey a narrative outlining:
    a. The objectives of VASM (as recommended in Section 5.2.2);

b. A description of the types of patients receiving surgical care in Victoria (including average age, most common surgical procedures, and average health of patients prior to surgery);
c. An outline of the proportion of surgical procedures resulting in patient mortality, and how this has changed over time (including non-preventable and potentially preventable deaths);
d. An outline of the four main stages of care delivered to patients and a summary of potentially preventable events identified at each stage;
e. The sequence of major steps that happen within each stage and number of potentially preventable events identified in each step; and
f. Any trends identified in each main stage of the patient journey (from year to year) to demonstrate that issues are monitored on an ongoing basis; and

10. That annual comparison of public hospitals be undertaken and reported by VASM to identify unexpected variations in outcome across the Victorian health system.

Each of these recommendations will address concerns raised by multiple stakeholder groups and strengthen the capacity of VASM to work with other bodies focused upon quality and safety improvement across the Victorian health sector and improve patient outcomes following surgical intervention.

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1. Background, context and approach

1.1. OVERVIEW OF VASM

The Victorian Audit of Surgical Mortality (VASM) was established in 2007 to conduct 'peer-review of all deaths associated with surgical care' in Victoria, including: Deaths that occur in hospital following a surgical procedure; and deaths that occur in hospital whilst under the care of a surgeon, even though no procedure was performed. VASM is one of many surgical mortality audits conducted across Australia under the umbrella of the Australian and New Zealand Audit of Surgical Mortality (ANZASM). Individual jurisdictional audits are co-ordinated and or otherwise directly managed by the Royal Australasian College of Surgeons (RACS). Activities undertaken by each audit are consistent with the current Framework for Australian Clinical Quality Registries (2014) published by the Australian Commission on Safety and Quality in Health Care (ACSQHC) and endorsed by the Australian Health Ministers Advisory Council (AMHAC).

All Australian audits of surgical mortality are funded by their respective State or Territory Governments. In Victoria, the Department of Health and Human Services (DHHS) provides direct funding to support the independent administration, ongoing reporting, and quality improvement activities arising from the activities undertaken by VASM. Economies of scale have then been brought to bear by RACS through leveraging of existing membership and accreditation arrangements for surgeons, and consolidated management and administration arrangements of other audits of surgical mortality. These arrangements were originally intended to achieve credibility and qualified privilege for compulsory surgeon participation, together with efficient and effective outreach and implementation of auditing processes. Most importantly, it was recognised that the established funding arrangements would facilitate de-identified outcome reporting for surgeons (and health services) to detect current or potential areas for ongoing quality improvement and provide ongoing monitoring of outcomes to establish improvements in surgical practice and patient management (through the audit process).

The lines of accountability for funding between the DHHS and VASM have shifted over time, in accordance with organisational re-structuring of the department.

1.1.1. Initial funding and accountability arrangements

Initially, VASM was contracted to undertake audit activities and report directly to the Quality and Safety Branch of the (then) Department of Health.

- Key findings of the audit were reported directly by VASM on an annual basis to the Department (and to other stakeholders).
- Issues arising from the audit were addressed by both VASM (through targeted seminars and practice guidelines to surgeons), and the Victorian Surgical Consultative Council (VSCC) which provided recommendations to the Department and the Minister for Health on areas requiring further government policy or program improvements - to support the quality and safety of surgical care delivered by Victorian health services (in accordance with their statutory

requirements under the Victorian *Public Health and Wellbeing Act 2008)*).

- Ongoing consultation with a variety of other stakeholders involved with or impacted by surgical audit activities or findings were undertaken directly by VASM (e.g., individual surgeons, The Australian Government, ANZASM, other medical and surgical Colleges) or independently by both VASM and the Department according to the nature of specific issues arising (e.g., Victorian Public and Private Health Services, VSCC, Victorian Consultative Council on Anaesthetic Mortality and Morbidity, the Victorian Health Complaints Commissioner, The Victorian Managed Insurance Authority, The Coroners Court of Victoria, etc.)

Under these arrangements, VASM has undertaken two independent reviews to determine:

- The extent to which the audit had achieved its founding objectives, and identify areas for ongoing quality improvement (2011); and
- Review progress in implementing areas for improvement and establish key performance indicators for ongoing self-monitoring and continuous quality improvement (2014).

Both reviews identified that VASM had achieved and indeed exceeded initial objectives (and expectations) in relation to establishing a credible audit process, systems for promoting and achieving surgeon and health service participation, and the production of outcomes to inform participants (including surgeons, health services, the DHHS and other bodies) of emerging issues and recommendations for better practice to improve the quality and safety of surgical care in Victoria.

1.1.2. Current/future funding and accountability arrangements

As of 1 January 2017, activities formerly undertaken by the Quality and Safety Branch of the department, including administrative support for all Ministerial Consultative Councils and VASM, are now governed by Safer Care Victoria (SCV) with the support of the Victorian Agency for Health Information (VAHI). These structures will be overseen by the Better Care Victoria Board which has been authorised in the new *Health Legislation Amendment (Quality and Safety) Act, 2017* proclaimed in October 2017. The potential relationship between each of these agencies and the work undertaken by VASM are outlined below.

- SCV has been established as the leading authority to eliminate avoidable harm and strengthen the quality of care delivered by Victorian health services, by focusing upon five key priority areas – all of which are actively pursued by VASM, including:
  - **Partnering with patients, families and carers** – through active inclusion in audit governance and oversight;
  - **Partnering with clinicians** – through the auditing process, outcome reporting, and quality improvement initiatives;
  - **Leadership** – through identification and monitoring of current and emerging issues impacting upon clinical practice and patient care;
  - **Review and response** – to each episode of mortality occurring in Victorian health services;
  - **Improvement and innovation** – through direct education and training, and collaborative initiatives to improve patient outcomes with a range of other key Victorian stakeholder groups including the VSCC, VMIA, DHHS etc.

- The VAHI has been established to analyse and share information "across Victoria's public healthcare system to provide an accurate picture of hospital and health service performance"[1]. VAHI will measure and monitor "indicators of quality care and outcomes for patients, for the purpose of public reporting, oversight and clinical improvement. The agency will:
  - Collect, analyse and share data so that the community and health services are better informed about health service performance;
  - Provide health service boards, executives and clinicians with the information they need to best serve their communities;
  - Provide patients and carers with meaningful and useful information about care in their local area; [and]
  - Improve researchers' access to data, so that they can create evidence to inform the provision of better, safer care"[1].

The relationship between activities undertaken by VASM, SCV and VAHI require further clarification. Any future relationships will need to clarify the level of reporting of any information collected by VASM – given that such information is collected under protection of Australian Government Qualified Privilege legislation (under Part VC of the *Health Insurance Act 1973*).

Under these arrangements, "any person (including a participant) who acquires information that identifies individuals that became known solely as a result of a declared activity must not disclose, or make a record, of that information"[2]. Failure to comply with this legislation may result in imprisonment for up to two years. Whilst this legislation is designed to complement different State/Territory laws, clarification is required to determine:

- The level of detail that may be proposed for future reporting to the DHHS (via VAHI or directly to SCV);
- Whether this level of detail contravenes the Commonwealth legislation; and/or
- How to resolve any proposed reporting arrangements under federal law that exists in the absence of specific Victorian legislation.

1.2. OBJECTIVES OF CURRENT REVIEW

As part of their contractual requirements to the DHHS, VASM has commissioned a third review focusing upon the extent to which they have maintained *perceived value to stakeholders* through achieving:

- Successful systems for clinical audit;
- Surgeon and health service participation;
- Public reporting of outcomes that are seen to be relevant to ongoing improvements in quality and safety of surgical practice and patient outcomes; and
- Collaboration with relevant stakeholders and dissemination of findings and recommendations to improve surgical practice across Victorian health services - that can be readily used by a range of stakeholders.

Given the recent changes in governance arrangements for quality and safety care across Victoria, and the need to determine future funding

1. https://www2.health.vic.gov.au/hospitals-and-health-services/vahi/about.

2. http://www.health.gov.au/internet/main/publishing.nsf/Content/qps-info.

arrangements, the current review will also need to focus upon *ongoing authorising environments and funding arrangements* by determining:

- The extent to which VASM activities are aligned to and integrated with the broader objectives of the Victorian health service system (including SCV, VAHI, and the DHHS); and
- The extent to which VASM activities continue to align with interjurisdictional requirements and reporting arrangements established by the ANZASM.

Finally, the current evaluation will also need to examine the extent to which *ongoing operational arrangements for audit implementation* are most efficiently and effectively undertaken by:

- The Royal Australasian College of Surgeons;
- The Department of Health and Human Services (including any relevant reporting authorities); or
- Other independently contracted third parties with demonstrated experience in implementation and management of clinical registries.

1.3. APPROACH

Based upon the context and requirements for evaluation, the current review involved six major stages:

11. An **overview of performance** data reported by VASM, including:
    a. The level of government investment in audit activities;
    b. Key activities undertaken by audit staff;
    c. Health service participation
    d. Ongoing levels of surgeon compliance;
    e. The number of cases audited each year;
    f. Levels of peer agreement; and
    g. Key audit findings, including ongoing and emerging issues.
12. A **survey of surgeons**, which was developed and enumerated to identify:
    a. The *perceived value* of VASM activities; and
    b. How VASM had influenced *changes in clinical practice*.

    A copy of the survey enumerated to surgeons is included as Appendix 1.
13. A **discussion paper** which was developed and disseminated to key stakeholders promoting consideration of:
    a. *Key issues* facing the audit, and
    b. A range of *potential future approaches* to audit operations.

    Questions in the discussion paper are included as Appendix 2.
14. Detailed **stakeholder consultations** with representatives from organisations involved in *funding and implementation of VASM* activities, and those involved in *identifying and acting on the information arising from the audit*. A list of key stakeholders involved in consultation is included as Appendix 3.
15. **Analysis and integration of evidence** to address the evaluation requirements.
16. Development and presentation of a **draft and final report** focusing upon:
    a. The background, context and approach of the current review;
    b. An overview of recent audit performance;
    c. Stakeholder understanding of the audit process and outcomes;
    d. The impact of audit activities across the health system;
    e. Perceived areas for improvement; and
    f. Key findings and recommendations for future audit operations.

2. Overview of performance

2.1. GOVERNMENT FUNDING

Since commencement (in 2006), the Victorian Government has invested $10,966,152 in the development and implementation of VASM.

Table 2-1: Victorian Government funding to VASM (2006-18)

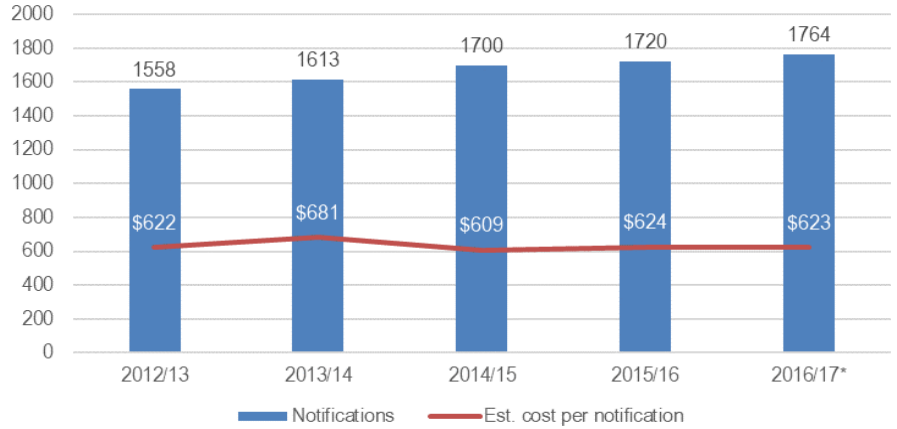
CONTRACT	PERIOD	FUNDING
Initial contract	2006/07 - 2008/09	$1,896,951
Second contract	2009/10 - 2011/12	$2,596,514
Third contract	2012/13 - 2014/15	$3,102,803
Fourth contract	2015/16 – 2017/18	$3,369,884
Total	**2006/07-2017/18**	**$10,966,152**

This equates to an average investment of around $900,000 per annum. When examined by each of the four major contract periods the average annual investment has almost doubled from around $600,000 to $1,100,000.

Acquittal of expenditure during 2017/18 indicates that administrative overheads and staff employment account for 90% of all costs. The remaining costs are subject to other projects or activities approved by the department on an annual basis (an may be rolled-over within the contract if these are not expended).

When the total annual funding allocation for VASM is examined against the number of audit notifications each year, an annual average cost of approximately $623 per death notification is revealed. This cost has remained relatively consistent over the past five years (Figure 2-1).

Figure 2-1: Number and cost per notification (2012/13-16/17)



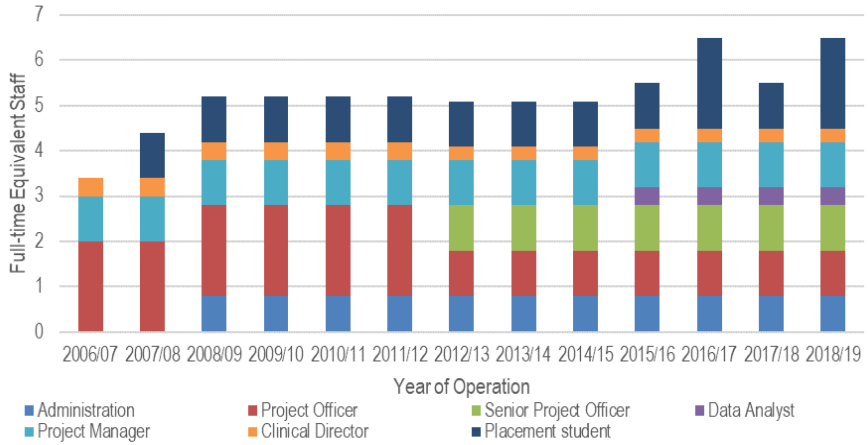
2.2. STAFF ACTIVITY

As outlined in Figure 2-2, the audit commenced in 2006/07 with 3.4 Full-time Equivalent (FTE) staff. Following the early establishment period, the number of FTE increased to five staff and remained at this level between 2008/09 to 2014/15. Following the introduction of mandatory participation (to maintain CPE requirements of the college) FTE has increased marginally, with the ongoing employment of a data analyst (in 2015/16) and the employment of an additional student placement (in 2016/17 and 2018/19).

Staff activities can be grouped into one of four main categories, relating to the procedural sequence of audit events, including:

- The notification, dispatch, receipt and follow-up of Case Report Forms to surgeons;
- The notification, dispatch and receipt of case report forms for First Line Assessment (FLAs);
- The identification, notification, dispatch and receipt of case report and de-identified medical records for Second Line Assessment (SLAs); and
- Other tasks relating to audit administration, quality improvement and dissemination of audit outcomes to stakeholders.

Figure 2-2: FTE employed by VASM (2006/07-2018/19)



The most resource intensive activity undertaken by VASM staff relates to the request for and de-identification of medical records received from hospitals.

Almost two thirds of all staff time is occupied in de-identification of hospital records.

Specific time records of this activity have been kept by VASM since 2014/15 and are summarised in Figure 2-3.

Figure 2-3: Time spent on key audit tasks (2014/15-2017/18)

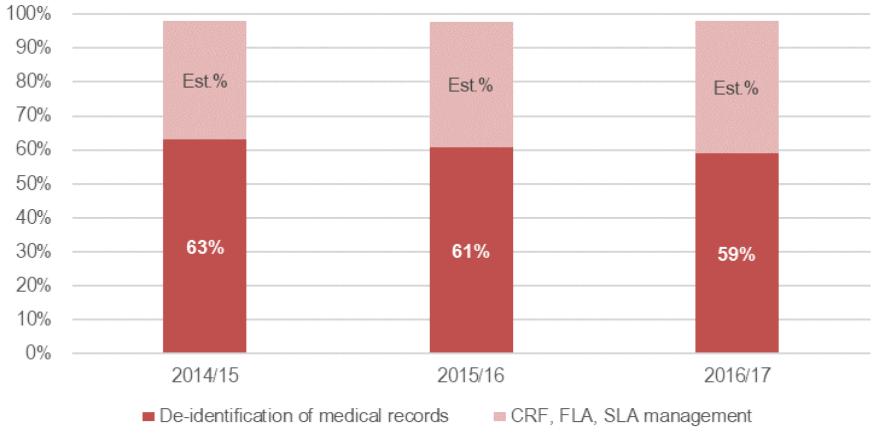
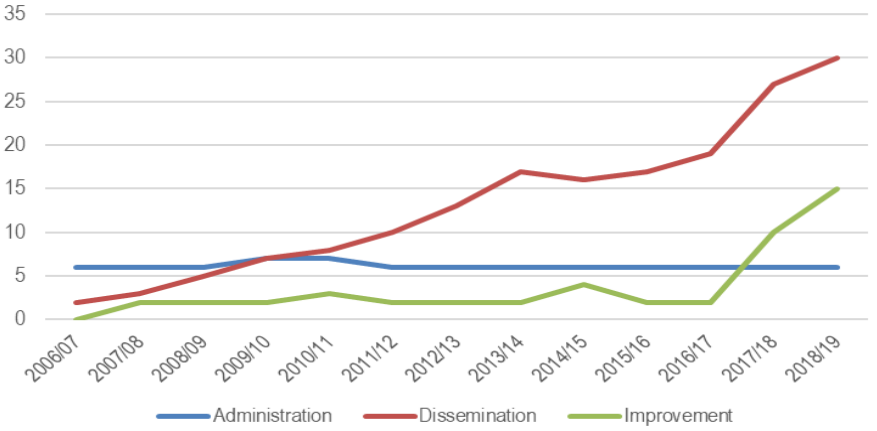


Figure 2-4: Other tasks undertaken by staff (2006/07-2018/19)



It is estimated that between 30-40% of staff time is otherwise devoted to case reporting, FLA and SLA processes.

Very little time remains to complete other audit-related tasks relating to administration, dissemination of audit findings and activities focused upon quality improvement of the audit. The number of these activities undertaken over the past 12 years are summarised in Figure 2-4.

The number of administrative activities undertaken each year has remained relatively constant. These activities mostly involve VASM management committee meetings, progress and financial reporting to the department, and the production of e-newsletters to those involved in VASM.

The most significant number of other activities undertaken by staff involve dissemination of findings relating to the audit.

Following commencement of VASM, these involved:

- The production of individual surgeon reports, and case not review booklets highlighting findings from the audit of individual cases and patterns or significant issues arising across all cases;
- Publication of annual VASM reports and national ANZASM reports; and
- Education events for surgeons and others interested in understanding more about the audit and discussing key findings.

As the audit matured and more information became available, dissemination activities expanded to include:

- The production of hospital reports;
- Aggregate confidential reports to individual surgeons;
- Peer reviewed scientific publications highlighting the outcomes of the audit;
- An increasing number of educational events (particularly in rural areas) and forums for other VASM stakeholders to discuss key issues and findings; and
- The production of a technical report providing further detail into findings reported in the VASM annual report.

Over more recent years, further activities to disseminate findings of the audit have been undertaken, focusing upon:

- The production of more tailored information about the audit to consumers; and
- Providing more regular and detailed information about cases of interest to all surgeons (via monthly newsletters and an educational personal device-based interactive application)

Remaining activities undertaken by VASM staff have related to quality improvements to the audit process, including:

- Guidelines for surgeons, hospitals, and assessors undertaking FLAs and SLAs were produced early in the audit process and have been regularly updated based on user feedback, and formal evaluation;
- Specialty reports have been provided together with ANZASM, capitalising upon broader data collected across Australia and New Zealand;
- Mandatory participation in the audit has been introduced by linking submission of case report forms to ongoing requirements for Continuing Medical Education by the College;

- Electronic submission of reporting forms has been introduced to streamline administrative processes for audit participants, administrators and assessors; and
- Three independent evaluations that have been commissioned to examine initial implementation and compliance with contracted requirements of the audit (2011), ongoing audit implementation and are areas for ongoing improvement (2014), and future directions for the audit in the context of past achievement and future directions of quality and safety in health care (the current review).

Five key performance indicators for ongoing monitoring of VASM performance and perceived outcomes were introduced in 2014, focusing upon:

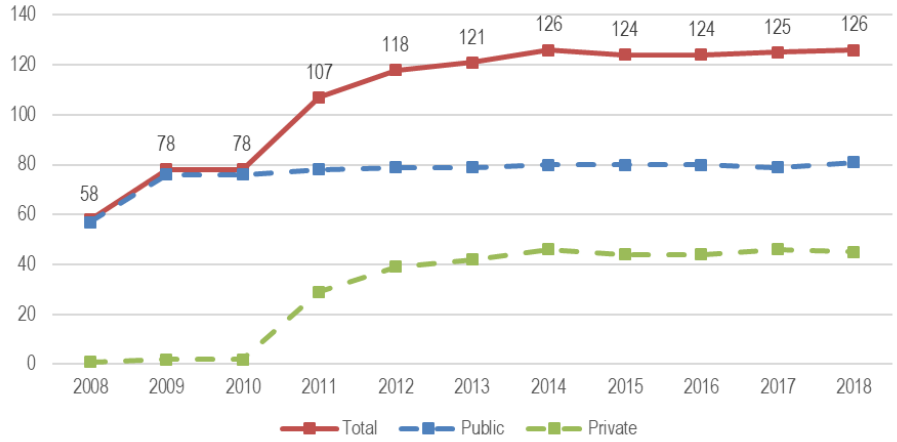
1. The number of public and private hospitals participating in the audit;
2. The level of audit coverage of all surgically-related deaths in Victoria (via comparison to data held by the DHHS);
3. Surgeon compliance with audit reporting within 60 days of notification (by VASM);
4. The level of inter-rater agreement about surgical management and patient outcomes, between surgeons and peer assessors (inter-reliability); and
5. Annual appraisal of the perceived value of audit activities and areas for potential improvement (gathered from a pre-specified, representative sample of audit stakeholders)

Trends in these indicators will be presented together with more recent evaluation findings in the following sections of this report.

2.3. HEALTH SERVICE PARTICIPATION

Since participation in the audit became mandatory in 2014, the level of health service participation has remained stable and considered to represent all public and private hospitals in Victoria where surgical procedures are performed (Figure 2-5).

Figure 2-5: Health service participation in VASM (2008-18)



As a result of this, the number of cases reported to VASM has continued to grow, and now approximates 1700 reports per annum (Figure 2-6).

Figure 2-6: Number of VASM reported mortalities (2013-17)

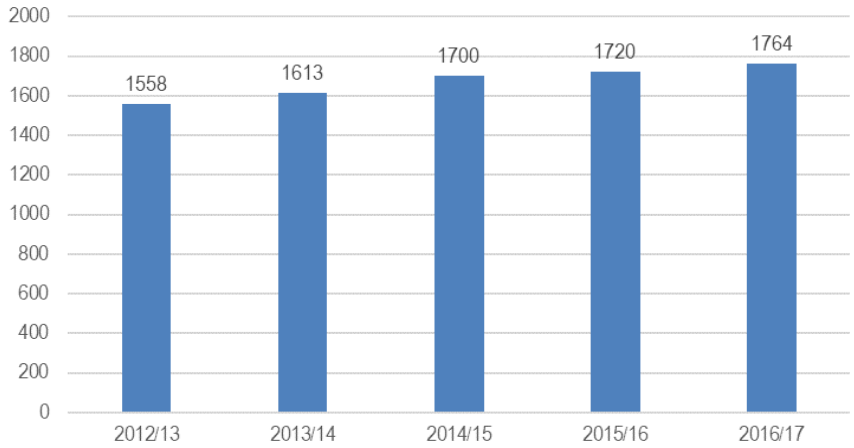
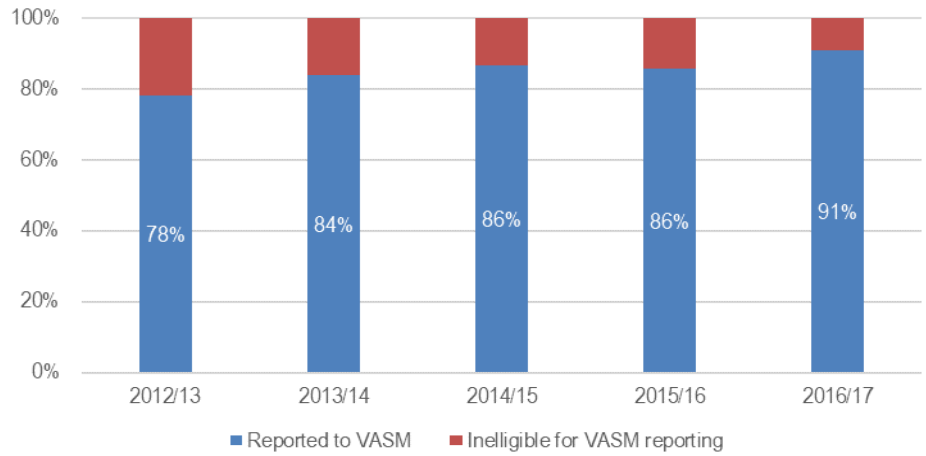


Figure 2-7: Percent of mortalities captured by VASM (2013-17)



2.4. LEVEL OF AUDIT COVERAGE

The Department of Health and Human Services has provided VASM with denominator data relating to all procedural interventions involving patient mortality across the state. VASM has undertaken analysis of these procedures to determine the extent to which eligible deaths are reported by surgeons[3]. The results, presented in Figure 2-7 indicated that:

All eligible deaths are currently reported to the audit. Cases reported to VASM represented around 85% of total mortalities associated with interventional procedures in Victoria between 2012-13 and 2016-17.

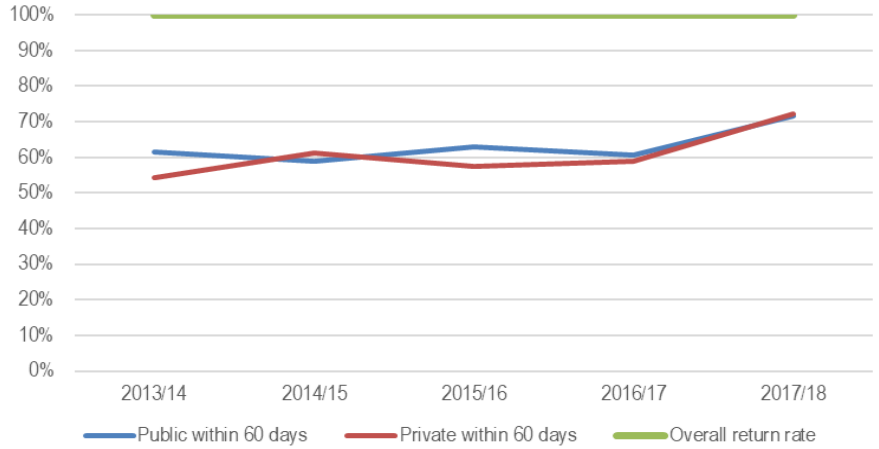
2.5. SURGEON COMPLIANCE WITH REPORTING

Surgeons are required to submit case report forms within 60 days of notification by VASM. Just under two in every three case reports were received within this time period between 2013-14 and 2016-17 (Figure 2-8). The proportion of cases returned by surgeons was also comparable between operations conducted in the public and private sector. A slight increase in the proportion of cases reported within 60 days occurred in 2017-18.

3. VASM (2018). Victorian Audit of Surgical Mortality (VASM) Report 10/07/2016 – 30/06/2017. p. 21.

Despite these delays in complying with audit reporting criteria, it was noted that all cases were eventually received by VASM for independent peer review.

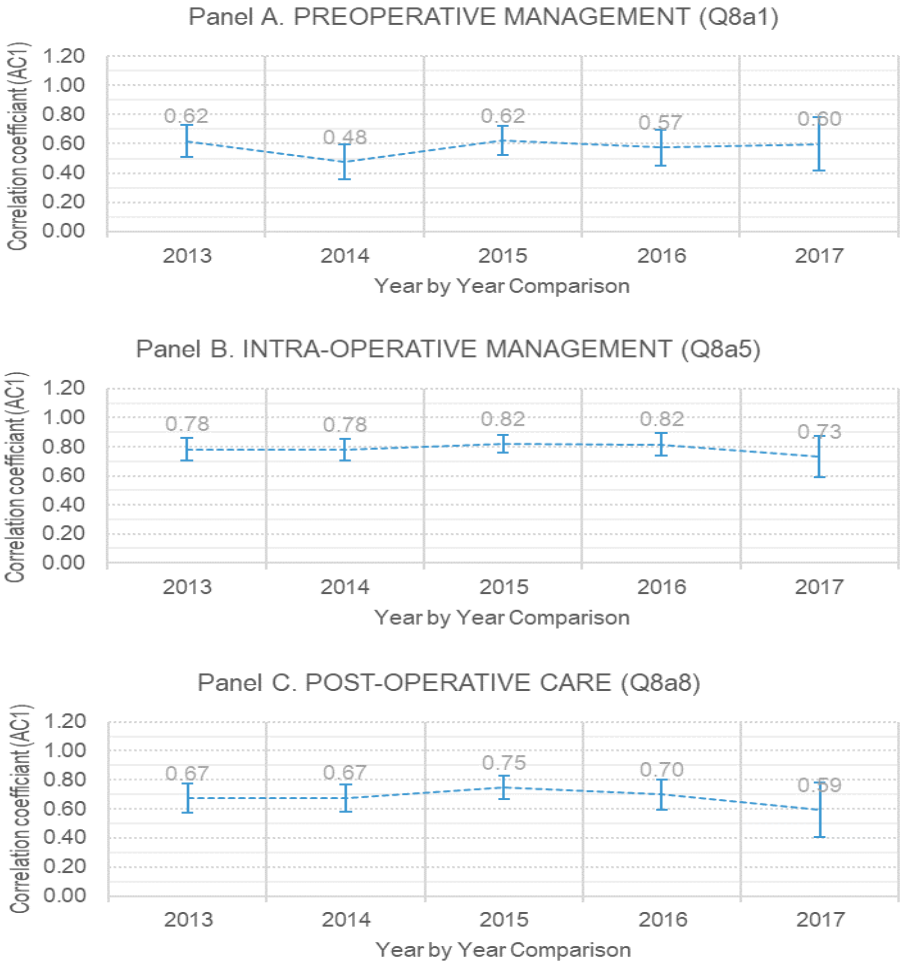
Figure 2-8: Surgeon reporting within 60 days (2008-18)



2.6. LEVELS OF PEER AGREEMENT

Levels of inter-rater agreement[4] between surgeons and Second Line Assessors, both of whom had access to the client medical record for the purposes of evaluation are presented in Figure 2-9.

Figure 2-9: Surgeon and SLA agreement (2013-17)



4. Based upon the Gwet AC1 coefficient. See in Wongpakaran et al. (2013). A comparison of Cohen's Kappa and Gwet's AC1 when calculating inter-rater reliability coefficients: a study conducted with personality disorder samples. *BMC Medical Research Methodology*, 13:61. Available at: http://www.biomedcentral.com/1471-2288/13/61.

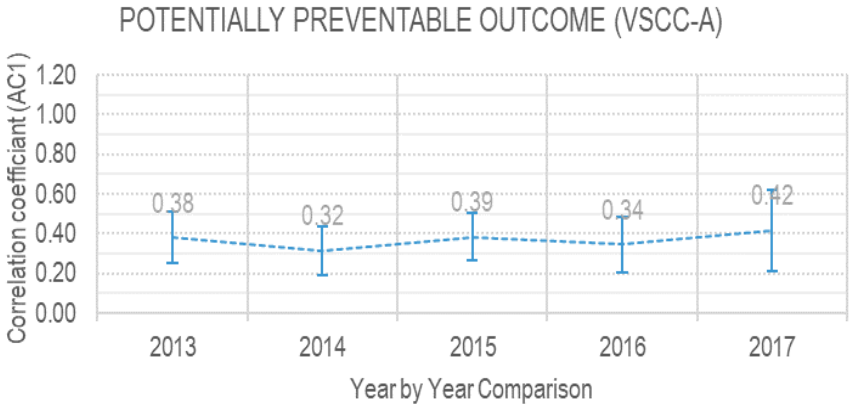
Ratings made about the same case by surgical peers demonstrated[5]:

- Moderate agreement about pre-operative management;
- Good agreement about intra-operative management; and
- Good agreement about post-operative care.

Importantly, levels of agreement have remained consistent over the past five years of measurement by VASM.

By contrast, ratings of potentially preventable outcome only demonstrated fair levels of agreement between surgeons and Second Line Assessors. This indicates that for around one in every three cases assessed, surgeons disagreed with the findings of their peers.

Figure 2-10: Surgeon and SLA assessor (2013-17)



5. Interpretations of data have been made on the basis of recommendations published by Altman, D. G. (1991). Practical statistics for medical research. London: Chapman and Hall.

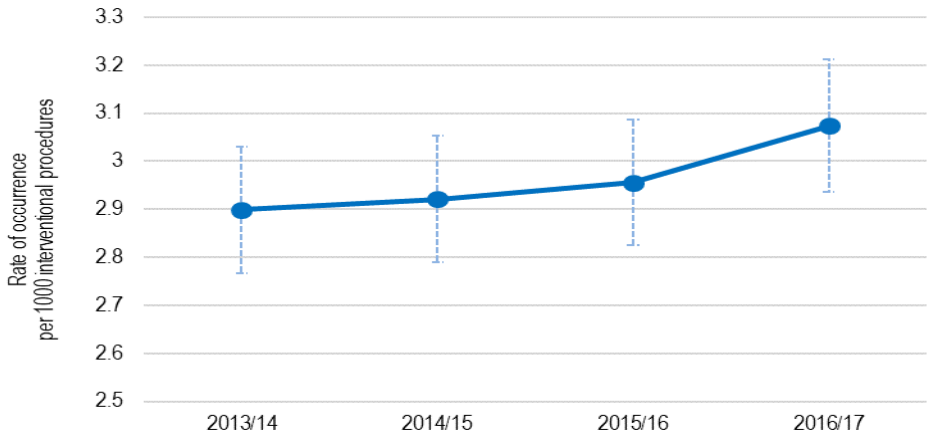
2.7. KEY FINDINGS ARISING FROM THE AUDIT

System-level overview

Analysis of the rate of procedural mortality in Victoria is presented in Figure 2-11 followed by the rate of potentially preventable events influencing surgical outcomes determined by VASM (Figure 2-12). Examination of this data indicates that:

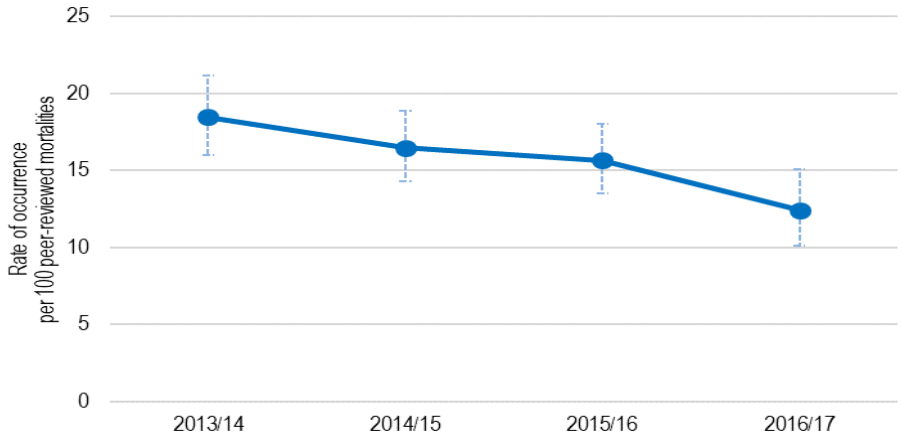
In the presence of an upward trend in the rate of procedural mortality across Victoria, the rate of preventable events influencing cases of surgical mortality has significantly declined [6].

Figure 2-11: Crude rate of procedural mortality VIC (2013-17)



6. In 2016-17 compared with 2014-15 (Poisson Z = 2.39 Fisher's p = 0.022) and 2013-14.

Figure 2-12: Preventable events influencing outcome (2013-17)



Surgeon appraisals gathered by VASM

VASM has implemented a process of seeking voluntary feedback from surgeons who are reporting cases for audit. Over the past 3 years, around 7% of surgeons have rated their experience of the VASM process and outcomes. These findings have indicated that:

Whilst four in every five surgeons (83%) indicated that the audit was fair, only two in every three surgeons (66%[7]) reported that the peer-reviewed feedback was informative or useful for improving surgical care.

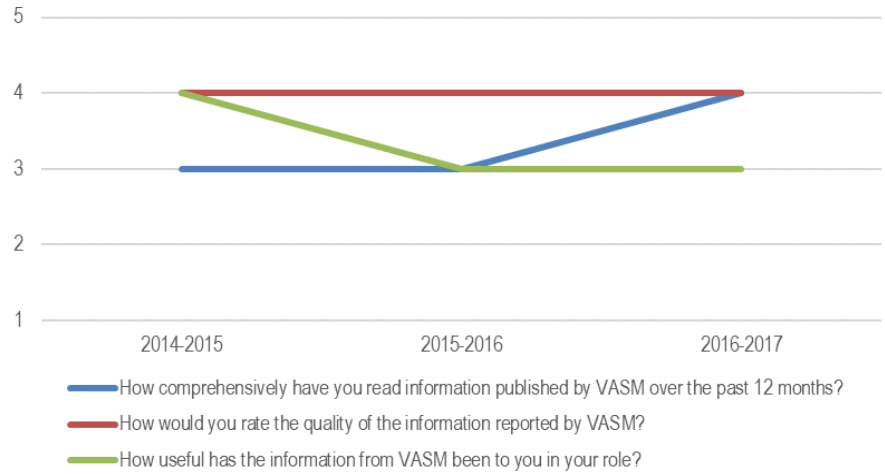
7. Derived from averaging the responses to "The peer-review assessment was informative" and "The peer-review feedback is a good source of information to improve surgical care at my institution", as presented in Chapter 7 of the 2016-17 VASM Report (Figure 3, p. 22).

Annual stakeholder appraisals monitored by VASM

VASM has also sought feedback from a variety of stakeholders involved in the work of the audit since 2014-15. Each year between 25-30 stakeholders are selected for a telephone interview to identify the extent to which they have:

- Read information distributed by VASM;
- Rate the quality of information provided by the Audit; and
- Use the information to assist them in their current role.

Figure 2-13: Median perceptions of VASM information (2014-17)



The annual sample includes representatives from hospital administration, health information management, clinical and quality management and staff from the Department of Health and Human Services.

As identified in Figure 2-13, stakeholders have consistently rated the quality of VASM information highly. However:

Over the past two years, it appears that stakeholders have interrogated VASM publications more carefully and found the information only moderately useful to them in their day-to-day roles.

The following section outlines the findings obtained from independent inquiry undertaken as part of the current review.

3. Stakeholder understanding of VASM

3.1. THE OPERATIONAL CONTEXT OF VASM

Almost all individuals who were consulted as part of the review recognised that VASM operates in a broad and complex system of quality improvement that involves a range of activities occurring at a health service level including (but not limited to):

- Clinical credentialing and scope of practice;
- Performance reviews;
- Peer discussions;
- Clinician rated outcome measures;
- Patient reported outcome measures;
- Patient reports about the care delivered by health services;
- Incident reports and investigations;
- Consumer complaints;
- Local morbidity and mortality reviews;
- Patient autopsies (where requested);
- Coronial investigations; and
- Medical indemnity claims.

At a broader system-level, stakeholders also appreciated that many activities are also undertaken to identify issues and improve the quality and safety of patient care, such as:

- Standards of professional accreditation;
- Ongoing continuing professional education activities;
- Guidelines or practice standards provided by the RACS, and other professional associations or bodies;
- Incident notifications and reviews;
- Regional morbidity and mortality reviews (in selected areas);
- Recommendations from hospital accreditation agencies;
- Recommendations and other activities undertaken by professional interest groups or networks;
- Guidelines from the Victorian Surgical Consultative Council;
- Clinician research;
- Participation in clinical quality registries;
- Updates in hospital funding policies;
- Hospital performance monitoring and benchmarking; and
- System level monitoring, investigation and quality improvement activities.

It was also recognised that information arising from each of these activities remain relatively siloed or are not readily accessed by all stakeholders with an interest in improving health care.

"Not sure that health services are joining the dots either. Not looking from a big view."

"The challenge for VASM to find a place within all of the influences. Some health services don't do things like M&Ms very well, so VASM is really the only system wide function that is consistent."

Importantly, it was also understood that improvement in patient care required a system-based focus, within individual treating teams and health services.

"How do we assess the effectiveness of the clinical systems processes."

3.2. SPECIFIC OBJECTIVES OF VASM

The level of understanding about the primary objectives of VASM was reported to differ between key stakeholder groups.

In relation to surgeons, the audit was well understood as a system of peer-review and education to support improvements in the care delivered to patients.

"VASM is an educational and quality improvement tool to promote education and self-reflection"

"Amongst surgeons it is well understood."

"It was set up to improve education, through education we change the ways of doing things."

"[VASM was] set up for an educational purpose, … getting feedback. There is great value in that as it is independent from health services"

Stakeholders representing surgeons, RACS, ANZASM and other medical professionals were clear that the purpose of VASM was to:

- Report individual cases of mortality following a surgical procedure or mortality under the care of a surgeon with no procedure;
- Have each case confidentially peer-reviewed to provide personal feedback to individual practitioners about cases that may be deemed potentially preventable, and/or issues that may have impacted upon patient outcomes (whether each case was deemed preventable or not); and
- Provide learnings from other case reviews to promote broader consideration of issues *that have the potential* to impact upon surgical mortality.

Senior health service staff involved in authorising the release of information to VASM were also considered to understand the purpose of the Audit. However, understanding by other administrative staff in hospitals who were involved in locating, de-identifying and dispatching medical records for SLA was considered to vary.

"Support staff do not understand why they have to provide the documentation to VASM. They consider it to be an extra burden – it is not relevant to them [personally]."

"Audits are not well understood by health services beyond those [surgeons who are] involved."

Over time, the Audit was reported to be better understood, particularly within clinical, quality, and governance units within health services.

"[VASM has] gained momentum with clinical governance and quality assurance units within the hospitals"

Individuals who were more directly involved in VASM considered that the objectives of any audit of surgical mortality were less clearly understood by other stakeholders.

"Audits are not well understood by government and other agencies."

"Government agencies keep changing staff, so they don't know what it actually is. They [appear to] think it is a system to catch rouge surgeons."

To some extent this was reflected in feedback received from non-surgical stakeholders.

"People who are not surgeons don't understand that the focus of the audit is for learning alone."

"[VASM is] a way to find out how a surgeon is performing, in terms of outcomes."

However, many of those involved in broader health system oversight did understand the purpose of the audit.

"Outside of surgeons it is not well understood that VASM is an educational tool, not even health services really understand this. There is not good visibility or understanding."

"The inception of the audit was during a time when it was recognised that there was a need for a mortality audit and the only way to do it was to sell it as education and building in the protection of QP. But there is now a push for transparency and a need for community assurance about quality and safety."

"Despite it being set up as an educational tool, it is not being used for that [for other areas of the health system]."

System level stakeholders were more concerned with how a range of different sources of information, including audit outcomes, could be more effectively integrated to monitor the safety and quality of care and improve patient outcomes.

"Health services understand a broader context, DHHS seem to have had a huge shift in understanding adverse events and human factors."

VASM is a closed shop. VASM is not set up to provide further information that would be of interest

"If, however, its only purpose is educational and no benefit to quality improvement, then why should government pay for it?"

"Audit were set up for an educational purpose, but does it have a quality improvement purpose? If so, what is the logic model?"

Others who were more directly involved in audit activities agreed that the method by which any findings translated into changes in clinical practice remained relatively obscure.

"It is basically a hope and pray method, it doesn't really close the loop."

3.3. SUMMARY OF UNDERSTANDING

Key stakeholder consultations revealed that the operational context and primary objectives of the audit were generally well understood.

VASM was one part of a complex system of quality improvement activities undertaken to maximise outcomes for patients. Whilst the Audit is implemented for surgeons in specific CRAFT groups, the lessons learned can be applied to all surgeons, treating teams, and health services operating across the system.

The method by which VASM activities impacted upon patient outcomes was generally agreed. Namely that:

- In an environment of confidential disclosure;
- Self-reflection and professional peer review can identify areas for ongoing improvement in clinical practice;
- The areas can be shared to promote improvements in practice more generally; and

- Improvements in practice can lead to better outcomes for patients.

Stakeholders differed in relation to the type and level of information sharing that should arise from VASM. All individuals consulted as part of the evaluation recognised the value of information sharing to surgeons, health services and other bodies. Notwithstanding:

- Amongst those most directly involved in the audit - the primary emphasis was upon dissemination of audit findings and areas for improvement to (all) surgeons, followed by selected disclosure to other stakeholder groups.
- Amongst those involved in broader health system management/oversight - the need to integrate learnings with other sources of data and information was emphasised, so that areas for improvement could be more transparently identified, more systematically investigated, and specifically targeted for systems-level improvement initiatives.

In addition, health system-level managers sought a clearer understanding about how changes arising from the audit activities might take place. Specifically:

A clearer demonstration of how changes arising from audit translate into improved surgical practice and patient outcomes was desired.

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4. The impact of VASM upon stakeholders

4.1. SURGEON PERCEPTIONS OF IMPACT

All surgeons were invited to respond to a survey about VASM undertaken as part of the current review. Responses were obtained from 106 surgeons who were appropriately experienced and representative of the surgical cohort reporting cases to the audit (see Appendix 4).

The majority of those responding to the survey considered that VASM:

- Provided a confidential method of case review (93%);
- Contained questions that were relevant for case analysis (86%);
- Provided useful information about all cases to surgeons (85%); and
- Provided relevant feedback to individual surgeons (73%).

These findings were more positive than feedback provided directly to VASM. However, surgeons still considered individual feedback to be less useful than case studies provided across a range of different surgical groups.

Figure 4-1: Perceived confidentiality of VASM

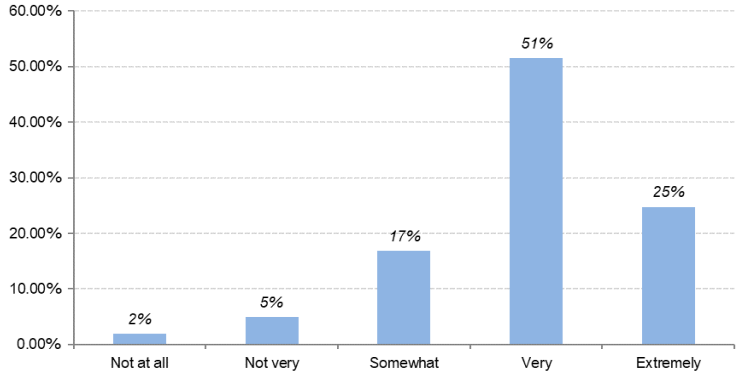


Figure 4-2: Perceived relevance of VASM reporting (questions)

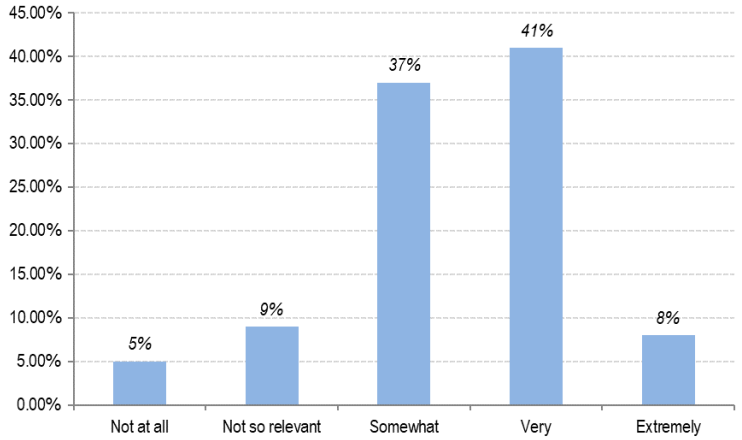


Figure 4-3: Perceived usefulness of individual surgeon reports

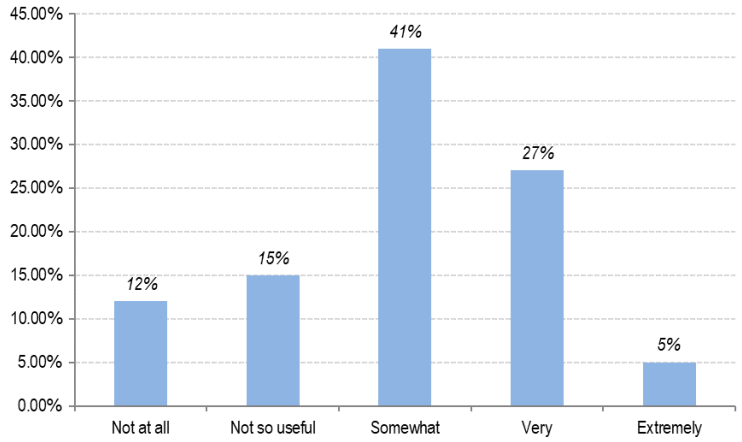
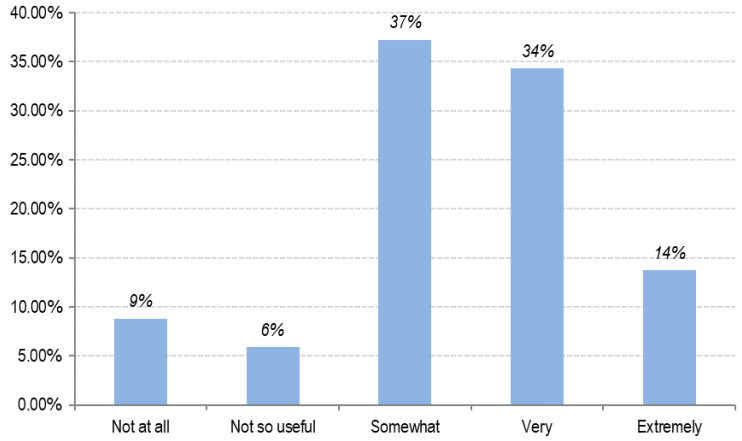


Figure 4-4: Perceived usefulness of case review booklets



The impact of VASM activities upon specific actions undertaken by surgeons is reported in Figure 4-5. When asked about how information from VASM had influenced their practice, surgeons indicated (again) that the case report studies had made the most significant impact.

Around one in three surgeons considered that the case studies published by VASM had influenced the way they document and evaluate cases in their clinical unit.

Around one in four surgeons indicated that the case studies had influenced the way they discuss patients, made decisions to operate and provide pre-operative care.

The requirements for reporting to the audit, and the nature of individual feedback provided to surgeons was reported to have minimal impact upon behaviour - influencing the choices made by only one in ten surgeons.

More importantly, between one half and two thirds of all surgeons reported that their clinical decisions were not influenced by information provided by VASM.

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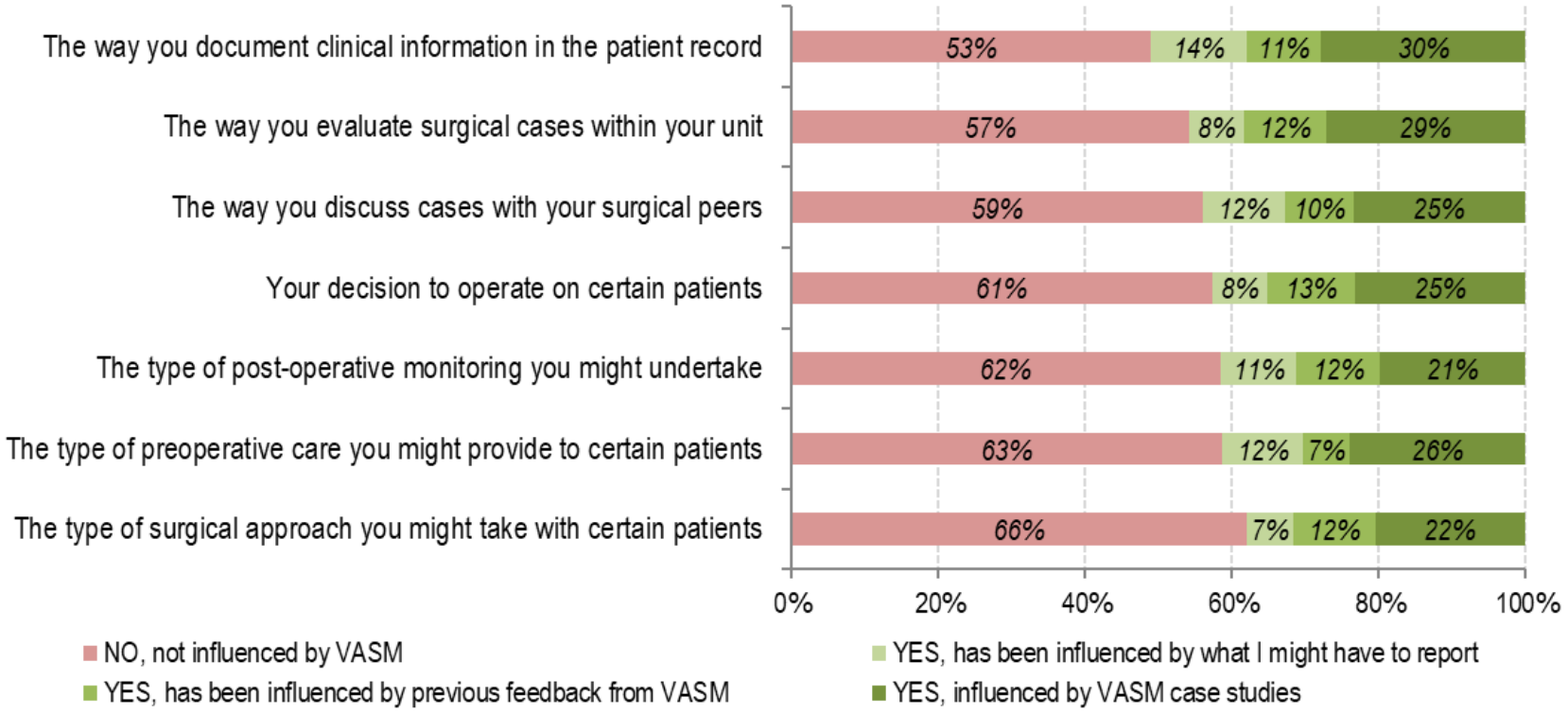
Figure 4-5: Perceived impact of VASM activities by surgeons



4.2. OTHER STAKEHOLDER PERCEPTIONS

The impact of qualified privilege

Several stakeholders emphasised, that whilst it may be easy to criticise the confidentiality surrounding the audit process, it was important to recognise that surgeons do not set out to do harm to patients. When harm occurs, most surgeons are highly self-critical. In this context, exposure to peer review must be undertaken with respect and sensitivity.

"Adverse events for the clinicians involved are deeply personal. They usually have connections with the person and their families and [any subsequent] analysis of such matters must be done in a very respectful way."

At the same time, it was broadly acknowledged that the needs of the health system have changed over recent years. Following the delayed identification of a cluster of neonatal mortalities at an outer metropolitan health service, the department of health is more acutely aware of the need for more timely information about all adverse events, so that episodes of preventable morbidity and mortality can be addressed in order to maintain public confidence about the quality and safety of health care delivered across Victoria.

We are at a point of change, following incidents such as Bacchus Marsh consumer expectations are changing. The question to be asked is – "Are we meeting consumer expectations, if not, what do we need to do to meet expectations, how can we change to make it possible?"

Stakeholders recognised that recent changes in the focus and direction of quality and safety monitoring presented a challenge to the processes of qualified privilege established to support surgeon reporting to VASM.

"We need to balance what do we risk, and can we meet these expectations on the basis upon which VASM has been set up?"

"QP limits who we can talk to about the important issues"

Protection of information disclosed by surgeons from other sources of inquiry, such as their employers, the media or court prosecutions, was a foundational principle upon which VASM was established.

"QP is critical in all these processes."

Without appropriate protections, most stakeholders acknowledged that there would be little incentive for surgeons to acknowledge areas of potentially preventable mortality - given the realistic concerns about how this information may subsequently be used (by others). If confidentiality provisions were removed, many stakeholders thought that the quality of information reported to the audit would suffer

"QP is an essential aspect of VASM, it helps with data quality and integrity."

"We must maintain trust of surgeons [for the Audit to work properly]"

"The difficulty [with releasing information] is potential flagging [of surgeons] which could result in surgeons withholding information."

Others thought that the level of qualified privilege created an atmosphere of secrecy which prevented non-surgeons from having access to information that would help improve outcomes for patients by others working in health services.

"It has a secret society feel about it."

"VASM hints of secrecy."

"We are sick of hearing about QP"

Most accepted that greater sharing of audit information was desired by a range of professionals across the health sector and that VASM could develop further to accommodate these needs.

"It is very important to have systems like this in place and evolve and build on them."

"If a surgeon is also the director, they want more information but as a surgeon they don't want it to be reported [about them]"

Some perceived that the Department of Health and Human Services would like to abolish current qualified privilege arrangements.

"The Victorian department is threatening – they want to take it away."

However, most stakeholders including those representing the department, considered that there needed to be a balance between confidentiality for surgeons and greater use of Audit information to promote public good. In this context, any move toward greater sharing of information would need to assure surgeons that the audit processes were appropriately covered by some type of legislation that had *at least the equivalent protections* of current Commonwealth qualified privilege arrangements.

"VASM should be brought under the umbrella of being covered by some sort of QP."

"Audits are merely after a particular level of protection not necessarily it being Commonwealth QP."

Impact upon surgical practices

Stakeholders were aware that whilst participation is mandatory, the audit was currently reliant upon voluntary changes in the behaviour of surgeons in response to direct feedback or any learnings identified from case studies circulated by VASM.

"Participation is not voluntary, but uptake of recommendations is voluntary."

In this context, most also recognised that VASM was one of many different sources of feedback provided to surgeons and other hospital staff about areas for improvements in the quality and safety of patient care.

"VASM is another source of information [provided to surgeons]."

"VASM as just another source of information or influence on decision making."

Accordingly, it would always be difficult to identify the specific influence VASM (from a multitude of other sources of feedback) upon changes in clinical practice.

"The audit is one contributing factor, so it's hard to prove the quantum of contribution - but it is a contributing factor in changing surgeon behaviour."

When asked about changes that might have been influenced by information identified by VASM, several examples were provided, including:

- Improvements in documentation of patient care;
- Increased awareness of DVT prophylaxis;
- Increased awareness of antibiotic prophylaxis; and
- An increase in the number surgical protocols to address adverse outcomes identified through the audit.

"Most documentation in most hospitals is very good now, this wasn't the case a few years ago."

"There has been a significant increase in awareness of DVT and antibiotic prophylaxis which has now resulted in changes in pre-operative documentation."

"There are an increased number of protocols that have been released as a result of adverse outcomes that have been reported to VASM."

Others also considered that VASM had helped identify processes of care that needed improvement. However, it was assumed that where local care processes needed improvement, that this would be undertaken by an individual surgeon.

"VASM influences the treatment of the patient" by identifying where the system failure has occurred - if it is the surgeon, it is identified and remedied."

Whilst some stakeholders noted that the Audit findings had been relatively consistent over time, it remained unclear whether this was a positive or negative outcome – given the Audit objectives of promoting positive changes in clinical practice.

"Themes have remained relatively constant over the years – lack of supervision, delay in transfer amongst them."

The impact upon health services

Hospitals were considered to be the most important locations for acting on the information arising from VASM – having the capability of undertaking further investigations and determining the most appropriate course of action from a local systems perspective.

"Hospitals are responsible for acting on the information provided by VASM. VASM doesn't have investigative powers. VASM merely flags a potential issue."

"Hospitals could, or should, be making local decisions."

However, many stakeholders were unsure about the capacity of health services to be receiving and acting on information about cases of surgical morbidity and mortality. In other circumstances, it was appreciated that non-local processes may be beneficial for reviewing cases, and VASM was considered to have an important system-wide ability to undertake these types of reviews.

"Not sure that health services are joining the dots together."

"We don't have line of sight to their [surgeons] practice conditions. VASM is the closest thing to seeing that."

"Some health services don't do things like M&Ms very well, so VASM is really the only system wide function that is consistent."

"The M&M isn't as private and confidential [as VASM]."

In particular, the quality of local morbidity and mortality reviews was considered to vary between hospitals.

"Other things that have to go on in parallel with the audit including M&M's, but the M&M process needs to be strengthened."

"Where VASM is superior to the M&M process is that latter is not a systematic review."

Issues with the quality and follow-up actions arising from local morbidity and mortality meetings were also identified in other jurisdictions. In Scotland for example, a great deal of current work was being undertaken to standardise and strengthen these processes. Demand for ongoing education to improve the quality of local process for reviewing cases of mortality (and morbidity) was high amongst surgeons and other clinicians.

"We have a program of national workshops. We provide a series of structured questions that teams consider [as part of the M&M meeting]. It's a team based, reflective process."

"The number of requests for training is overwhelming. In the last two years we have trained over 2800 people."

"One of the major benefits is local ownership. Staff are more open to speak up when the chairs have undergone training. Teams feel empowered. We get attendance from hospital management down to junior doctors. They can make more timely changes."

Others were more pessimistic about local hospital processes, considering that they do not appear to have resulted in appropriate changes to clinical management using information that is already available.

"I've lost faith in the clinical incident review committee and RCAs, there are lots of recommendations and no real changes."

Notwithstanding, many stakeholders considered that the capacity to identify and notify outlying hospitals (in relation to rates of potentially preventable surgical mortality) was a key strength that VASM was well placed to deliver. However, it was also noted that health services required more information than simply being an 'outlier' in order to make appropriate changes.

"Outliers are identified but not acted on because VASM doesn't provide health services sufficient information to act on issues."

"Current information provided to health services is inadequate, insufficient information to even identify what speciality the death occurred within. Needs to be more useful to health services if they are to act on it."

"Accountability to act is with the health service so if there isn't enough information to act, then the VASM process doesn't facilitate closing the loop. For example, there is a hospital that is identified in the annual report as an outlier, they knew they were the outlier but didn't have sufficient information to act on it."

"They [hospitals] know they are outliers but don't have the information to act on it."

"Advice from VASM to health services is not provided in a way that it can be acted upon."

The impact upon the health system

Several stakeholders indicated that recent requests for VASM information to inform and monitor the broader health system represented a change from the original purpose of the audit.

"I feel that VASM is being forced to be something it was not intended for – it was meant to be educational, to provide trusted, peer feedback – it now appears that VASM is trying to collate a range of opinions as a basis of evidence for change."

"It was designed for a confidential peer review process not to promote change."

Others understood the original purpose but emphasised that the ultimate goal of peer-review and education was to improve patient outcomes, and this needed some level of demonstration to justify the ongoing value of the audit.

"The primary purpose of VASM is to reduce avoidable deaths, through education." Education is not the end in itself."

"It is hoped there is a change in surgeon behaviour based on feedback from the Audit. But…. Hope is not a good strategy for $1M a year, I just don't think there is good evidence for the outcomes of VASM."

In this regard, more transparent reporting of differences in outcome between health services was considered an important first step.

"Non-surgeons have an expectation for the information."

"We need to get transparent reporting to get system improvement."

"They don't have a transparent system that we can interrogate. What learning systems do they have in place?

"There is minimal usage of their data – there could be more."

As a second step, stakeholders wanted to see changes occurring in areas that were leading to potentially preventable outcomes for consumers.

"We want to know how to assess the effectiveness of the clinical systems processes."

"What are you going to do about it? Are you going to stop performing these procedures?"

"We have a lot of questions about what they are doing to improve clinical outcomes."

Comparisons were drawn with other health services who were involved in reporting to many different clinical quality registries but did not seem to use the findings from the registries to identify and respond to areas that needed further improvement.

"It's like XXX [named health service] where they had over 90 CQRs and no line of sight for improvement."

Despite these criticisms, stakeholders were optimistic about the future of VASM. They saw the audit as a well-structured, systematic and valuable mechanism to identify trends and demonstrate changes in clinical practice involving surgeons.

"There is merit in using VASM to detect patterns both within a health service (across Craft areas and other systemic issues) as well as across health services within the State."

"We want VASM to succeed, it is a valuable source of systematic peer reviewed data, but it needs to evolve."

4.3. CURRENT METHODS OF INFLUENCE BY VASM

Key stakeholders interviewed as part of the current review also expressed a range of views about the specific methods by which VASM seeks to influence surgeon behaviour and consumer outcomes.

Audit coverage

VASM was considered a strong system for undertaking peer review of surgical mortalities. In order to further capitalise upon the successes of VASM some stakeholders thought that extending the role of the audit to review cases of surgical morbidity may also be worthwhile.

"VASM has the opportunity to take use of the advantages and look at morbidity."

Whilst others agreed that the systems of audit could be used to examine cases of morbidity, it was thought to be a significant undertaking that would need to be accompanied by a sizable increase in funding.

"Hard to argue against looking at morbidity, as long as it is resourced and funded. However, including morbidity will be vastly more difficult and time consuming as the volume [of cases for reporting and review] would be much higher."

As an alternative, it was suggested that VASM may seek to examine a smaller number of selected morbidities in future years.

"Targeted morbidities would be a more realistic thing to do."

"Could consider 5-6 or so morbidities consistently for the next 5 years."

"Looking at all morbidity is too big for VASM – very resource intensive, but serious morbidity could be looked at by VASM. Would need to determine how 'serious morbidity' is defined."

In the main however, most stakeholders thought that VASM was better placed focusing upon cases of surgical mortality, with other bodies or structures better suited to examining issues relating to surgical morbidity.

"Shouldn't need to do anything more, they do it [mortality reviews] well and it's what they're designed for."

"To extend the use of VASM to morbidity and mortality is ridiculous decision. It would come at a huge cost."

"Alternately, morbidity could be done by VSCC or even by the Department."

Case notification, reporting and assessment

Stakeholders who were closer to the day-to-day operations of the Audit noted the significant time spent following up notifications to surgeons, and more specifically the time spent de-identifying case records sent to VASM for second line assessment. Despite requests to do so, it was noted that:

"Very few hospitals deidentify data."

De-identification of records was initially adopted by VASM to minimise the likelihood of surgeon identification by their CRAFT group peers – especially in smaller specialty areas. However, it was noted that de-identification of case record notes does not occur in other jurisdictional audits of surgical mortality (across Australia).

"Records are de-identified due to the small communities [of some specialists] in Victoria."

"Redacting case notes is stupid."

"Other states don't deidentify hospital records."

Accordingly, VASM reported considering a system of interstate audit using un-redacted case file notes for second line assessment.

"VASM are moving towards getting interstate surgeons to review and make recommendations."

Others suggested removing any requirements for de-identification of medical records sent by hospitals, given that:

- It creates additional time to undertake each review (due to delays in submission of records by health services); and
- Confidentiality provisions cover information submitted to VASM for the purposes of audit.

"We need a time frame within which health services need to provide unredacted records."

Some stakeholders noted that the VASM reporting forms were updated on a regular basis to incorporate additional items that had become evident from a system perspective. Examples of updates were reported to include specific questions relating to trauma and infection.

Despite well-established notification and reporting processes, it was recognised that VASM did not have systems for early identification of significant or high-risk cases, and that this could result in delays in identifying issues that would need to be referred onto the department for follow-up.

"There is no clear process to pick up the high-risk ones."

It was also suggested by a number of different stakeholders that the audit process might benefit from having cases examined by more than one reviewer - particularly when cases were advanced for second line assessment.

"There could be a role of another level of review, where you get a group of people looking over it."

"Second line assessments could be done by VSCC or another type of perioperative committee with a range of Craft Group members."

"Such a system and responsibility needs more than a single reviewer, hence the proposal for a revised Perioperative Council."

"Serious complications, which would need to be defined, should be mandated to be reported to the VSCC."

Case studies

As previously reported by surgeons, the case studies reported by VASM were the most useful source of information to promote any changes to clinical practice. Other stakeholders also noted that:

"Clinicians relate to stories of patient of care."

"Clinicians learn from cases for continuous improvement."

The case report booklets were also reported to be of interest to other clinicians and health service administrators.

"The case review booklet is very useful and highly educational – not just for surgeons, you see nurses and various team members flicking through them."

Education sessions

The educational sessions provided by VASM across metropolitan and rural areas of Victoria were regarded positively.

"They start conversations across health services, not just surgeons."

Notwithstanding, it was acknowledged that more work could be done to actively promote Audit findings across the state.

"Audits can do better in extending influence – like roadshows and extending the audience."

Aggregate Reporting

Many stakeholders commented about the need for more effective communication of audit findings by VASM. It was recognised that the level of detail was limited by qualified privilege arrangements, but this did not have to impede clearer messages from VASM.

Multiple changes to the annual report structure were suggested, including:

- That the report be written and interpreted as a system-level report card for Victoria;
- That the report be specifically written with a range of stakeholders needs in mind including the Department of Health and Human Services, health service boards, health service executives, hospital heads of units, and Clinical Councils;
- That clearer expression of key findings occur (potentially with the assistance of an independent editor);
- That there are headline messages which are emphasised throughout the document;
- That there is a section (or separate document) focusing upon a plain language statement and implications for health consumers;
- That detailed statistical information is removed and referenced to a technical supplement, to help readers identify the key findings;
- That any comparisons are reported on a year-by-year basis, rather than combining data over multiple-year periods and/or comparing single year data with grouped data that incorporates the same time period;
- That the report is much shorter than the current document;
- That there is better explanation of more detailed findings (where these are included); and

- That there is analysis and commentary on what any observed trends or findings in the data mean for surgeons, hospitals and the health system.

The following comments were received from stakeholders in relation to the key points identified above.

"The Annual Report needs to be viewed as a system report"

"The audience for the Annual Report should include as priority audience – the department, health service boards, health service executives, heads of units, Clinical Councils."

"There is no analysis of information provided – no commentary."

"There are no headline messages."

"The consumer information aspect is not being acted upon by VASM."

"The way results are presented has made the report impenetrable'."

"You can't use the data for improvement."

"Separating the technical information from the rest holds people's interest."

"The Annual Report is a difficult document to read and has several problems: It combines data from different periods for different things within the one annual report; There is a lot of unhelpful description."

"The explanatory notes are not good."

"It needs to hit the highlights, as currently presented it is old fashioned and hard to digest."

It was also suggested that VASM undertake a more formal process of providing relevant policy briefings to the department – highlighting key issues, the comparative performance of different services, and how there are relevant to current activities undertaken by the department and other health services.

"Policy briefings [from VASM] would be enormously helpful."

It was hoped that these changes would produce a document and information updates that enabled greater access to and understanding of information reported by VASM and enable a range of different stakeholders to use this information to facilitate quality improvements.

4.4. FUTURE DIRECTIONS

Despite some harsh feedback about the current Audit mechanisms and outcomes, many stakeholders expressed a positive outlook for the future of VASM – so long as changes occurred to enable better use of information arising from the Audit.

"We need to be able to close the feedback loop."

The important contribution of surgeons to ongoing quality improvement was recognised, together with the need to evolve the current audit process into a partnership with other areas focused upon quality improvement and patient outcomes.

"If we were ever to develop a new system [from scratch], it would need to be with RACS, as a partnership model [involving surgeons]. It couldn't be developed in isolation. RACS have a very pivotal role."

It was hoped that this would result in a clearer picture about how the audit may make a positive improvement to the culture of continuous improvement.

"We need a clearer understanding of the logic model for improvement."

Stakeholders also recognised that there had been significant changes in the focus towards quality and safety across the state. It was hoped that VASM could better align with these changes and incorporate the needs that have arisen from a range of other stakeholders.

"The goal posts may be changing, but so is the health system. You need to look forward and see how relevant you can be in the face of changing times and needs of the system. When it [the Audit] started it was purely about surgeon education and that was a good thing, but it's no longer sustainable to be that alone, it needs to look at its role in overall QI."

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5. Key findings and recommendations

Having reviewed the work undertaken by VASM and received extensive feedback from a wide range of stakeholders involve in the work of the Audit, this section outlines a summary of key findings and recommendations for further improvement in current VASM processes.

5.1. KEY FINDINGS FROM THE REVIEW

Context

As previously noted, VASM was established in 2007 as an educational tool for surgeons to understand preventable outcomes arising from care that may have a potential impact upon patient outcomes. The audit commenced at the same time as other audits of surgical mortality were being implemented across Australia and New Zealand. At the time of establishment each audit represented current international best practice in quality improvement for surgical care. In this context, the Department of Health and Human Services was actively interested in supporting VASM and increasing surgeon participation in clinical quality improvement initiatives.

Over the past 10 years there has been a great deal of progress in quality and safety monitoring across Victoria. One of the most significant changes during this period occurred following several neonatal deaths raised questions about the health systems capacity to successfully monitor adverse events causing harm to Victorians. In response to these events a major review recommended that a more active approach to patient safety monitoring be undertaken by the department.

Safer Care Victoria (SCV) was established to achieve this objective and minimise avoidable harm that might occur across the Victorian public health care system. A key mandate of SCV is to make better use of existing information to inform improvements in patient care – including information arising from VASM. The objectives of SCV have become the new 'lens' through which all department funding will be examined, to determine whether and to what extent ongoing investment by the Victorian government will result in improved outcomes for patients.

Alignment of VASM

Many of the core objectives of SCV are already aligned to the work of the Audit. VASM has developed successful partnerships with clinicians to review and respond to episodes of surgical mortality across the state. Areas for improvement have been identified through VASM process and this information has been presented back to surgeons on a case-by-case basis in addition to more broadly disseminated case reports. VASM has also developed summary reports for distribution to individual health services.

Surgeons and other stakeholders recognise the achievements of VASM, particularly:

- The rigorous infrastructure for case detection and assessment that has been established and successfully maintained;

- The levels of surgeon and health service engagement that have been achieved;
- The contribution of the audit to a national infrastructure and ability to benchmark Victorian performance against other jurisdictions;
- The ongoing improvements undertaken over time to enhance the audit processes; and
- The efforts made by VASM to communicate audit findings to an increasing range of different stakeholders.

Notwithstanding these achievements, two major areas of concern have emerged in relation to the method of Audit implementation, namely:

- The capacity of VASM to share more detailed information to non-surgical stakeholders, and
- The capacity of VASM to demonstrate change in areas identified to require further improvement.

These issues will need to be addressed to maintain alignment of VASM with the current objectives of the Victorian government (and maximise the potential for any ongoing funding of audit activities).

Sharing of information

Current audit processes assume that surgeon awareness of areas for potential improvement will result in changes to clinical practice. However, surgeons rarely operate in isolation. Patient management typically involves a team of professionals who may contribute to the cause and/or resolution of issues leading to potentially preventable adverse events that impact upon patients.

In the public sector, it is ultimately the hospital that is responsible for the welfare of patients. Hospitals therefore require enough information to identify areas for further investigation (of factors that surgeons may be unaware of) and/or implementation of initiatives to improve quality and safety across the organisation. To do this more effectively, health services would benefit from the findings of peer-reviews undertaken by VASM.

In this context, it is appreciated that complete de-identification of surgical cases for the purposes of reporting to health services would undermine the audit processes established by VASM. Protections must be maintained to prevent misuse of any additional information reported by surgeons (that is not already documented in patient records). Without these protections, the level of confidence in VASM would decline, undermining levels of disclosure and reflection about opportunities for practice improvement. The quality of information reported to the Audit would decrease, and any potential utility of Audit findings would diminish. Maintaining an appropriate level of qualified privilege is therefore critical to maintaining the integrity of VASM.

The capacity to demonstrate change

VASM stakeholders recognise that attributing change in surgical practice to any single quality and safety initiative is a challenging task. However, most stakeholders also acknowledge that a coordinated approach to identifying issues and implementing strategies is the best method of achieving improvements.

In this context, the focus shifts to creating opportunities for integrating the findings that are identified by VASM with other sources of information – rather than focusing upon the ability to demonstrate change in isolation. Public confidence is strengthened when multiple initiatives demonstrate how improvements in patient outcome are achieved. When combined with the activities undertaken by other

stakeholders, a logic model for improvements that result from multiple initiatives can be developed and tested to demonstrate change.

5.2. RECOMMENDATIONS

The current review has sought to identify strategies that meet the needs of both VASM and a range of other stakeholders responsible for undertaking quality improvements across the broader health system. These are presented below as recommendations for active consideration by VASM.

5.2.1. Surgeon confidentiality

The confidentiality of information reported by surgeons is fundamental to the continuing operation of VASM. In order to facilitate greater sharing of information between VASM and other stakeholders it is recommended that specific Victorian legislation be written to maintain the confidentiality of any disclosures made by surgeons. Specifically:

It is recommended that VASM work with SCV and the department to develop appropriate qualified privilege arrangements for the sharing of information in Victoria.

When VASM is satisfied that any new legislation confers the equivalent levels of qualified privilege, a transition from Commonwealth to State protection of information can occur.

There are several pieces of legislation adopted in Victoria and other jurisdictions that might inform future qualified privilege arrangements (pending appropriately qualified legal advice) including:

- The *Victorian Health and Wellbeing Act 2008* (Part 4, Division 3) which outlines specific functions and operations of the Consultative Council on Obstetric and Paediatric Mortality and Morbidity (compared with the general provisions applying to other prescribed Consultative Councils).
- The *New South Wales Health Administration* Act 1982 (Part 3, Section 23) relating to specially privileged information. This legislation operates to protect surgeons in NSW reporting to CHASM.
- The *South Australian Health Care Act 2008* (Part 7, Section 72) relating to release of information arising from the work undertaken by Root Cause Analysis teams.

5.2.2. Objectives of VASM

The objectives of VASM are published as: "…an educational exercise whereby causes of avoidable mortality and morbidity associated with surgery can be identified and lessons for the medical profession can be disseminated." (Case Note Review Booklet, Tenth Edition – February 2018).

In order to align the expectations of surgeons and other stakeholders about the aims of the audit:

It is recommended that additional information be included in the published objectives of VASM to emphasise that:

- **The audit is a method of case detection to identify areas for improvement in the care delivered by health services in Victoria;**

- **The audit recognises a range of different professionals are involved in the delivery of care to surgical patients and fosters a no-blame culture of reporting; and**
- **The audit findings are used with other information to maximise the quality and safety of health care and the outcomes experienced by patients.**

These statements will also be more consistent with information reported on the VASM website stating that: "The aim is to identify any system or process errors and develop strategies to redress these."

5.2.3. Audit processing time

Most of the time spent by VASM staff relates to de-identification of hospital records provided by health services for the purposes of second line assessment. Significant time can otherwise be re-invested in other audit activities – particularly those related to publishing and promoting the uptake of audit outcomes. Moreover, other jurisdictions do not require de-identification of hospital records in order to undertake second line assessments. Accordingly:

It is recommended that requirements for de-identification of hospital records are removed in order to streamline provision of information by health services to VASM, and the forwarding of information to surgeons undertaking second line assessments.

5.2.4. Early detection and escalation of high-risk cases

Current systems of audit do not triage individual case report forms provided by surgeons. As a result, potentially serious cases are not detected until a first or second-line assessment has occurred. Therefore:

It is recommended that VASM develop a system of identifying flags in case reports and expediting 'flagged' cases for more urgent review.

Such cases might be considered for immediate second line assessment (incorporating case file information) to determine the potential risk of recurrence. Alternatively, cases might be forwarded for closer examination by a group of surgeons and others involved in peri-operative care who have been formally designated by the DHHS to undertake multi-disciplinary reviews (pending appropriate qualified privilege arrangements are in place).

5.2.5. Identification and re-examination of case clusters

It is also recommended that VASM develop a method of recognising clusters of potentially preventable adverse events that are characterised by common underlying issues.

Identified case clusters should then be subject to further assessment as a group to identify any additional factors that may be contributing to the occurrence of these events.

5.2.6. Analysis and reporting according to care pathways

In order to provide additional information to surgeons and more useful information to health services and other stakeholders responsible for further investigation of local systems issues:

It is recommended that VASM undertake further analysis and reporting of information about the care pathway in feedback provided to individual surgeons, hospitals and other stakeholders.

Specifically, this analysis should identify key steps and any issues within each of the four major stages of care that are currently reported (treatment delays, pre-operative care, operative care, post-operative care).

In the short term, this can be achieved by 'stepping out' existing code frames used to summarise each review.

In the longer term, more detailed code frames can be established that cover the major steps undertaken within each stage of care.

5.2.7. Investigation and reporting of changes to practice

The current case reporting form asks surgeons "In retrospect, would you have done anything differently?" (Question 24). This assumes that the actions of the surgeon were directly responsible for any adverse events experienced by patients. Where potentially preventable outcomes were related to other issues – the answer to this question could be 'no'. Accordingly:

It is recommended that surgeons are asked directly about any changes in clinical management that have been implemented (by themselves or others) in response to the outcomes of each case.

This is the most direct method of identifying local changes in practice that are associated with the cases that are reported to VASM.

5.2.8. Independent review of potentially preventable deaths

It is recommended that all cases in which potentially preventable events are considered to have caused the death of a patient are referred for assessment by an independent panel of reviewers.

The independent panel should be an appropriately designated body by the DHHS, incorporating an appropriate mix of CRAFT group specialists together with other professionals involved peri-operative care. Appropriate qualified privilege arrangements should be in place to allow exchange of information between VASM and the designated panel.

Information reviewed by an appropriately convened panel can then be integrated with other data held by the department, to develop a broader picture of any emerging issues, and identify priorities (and actions) for further investigation or improvement at a systems-level

5.2.9. Simplifying the structure of VASM reports

In response to independent analysis conducted as part of the review and feedback from stakeholders:

It is recommended that reports provided by VASM to surgeons, hospitals and other stakeholders are re-structured to convey a narrative that outlines:

- **The objectives of VASM (as recommended in Section 5.2.2);**
- **A description of the types of patients receiving surgical care in Victoria (including average age, most common surgical procedures, and average health of patients prior to surgery);**
- **An outline of the proportion of surgical procedures resulting in patient mortality, and how this has changed over time (including non-preventable and potentially preventable deaths);**
- **An outline of the four main stages of care delivered to patients (initial treatment/diagnosis, pre-operative care, operative care, and post-operative care), and summary of potentially preventable events identified at each stage;**

- **The sequence of major steps that happen within each stage and number of potentially preventable events identified in each step; and**
- **Any trends identified in each main stage of the patient journey (from year to year) to demonstrate that issues are monitored on an ongoing basis.**

Annual reports provided to health services and other stakeholders should aggregate audit findings about areas for consideration, concern and adverse events to enable more meaningful detection of issues arising along the care pathway provided to patients.

It is also recommended that VASM work together with SCV, to identify and briefly describe relevant initiatives that focus upon improvements in areas identified through the Audit. Case studies might be included to provide examples of how changes in practice result from the activities undertaken by VASM together with those implemented by other stakeholders.

Presentation of detailed statistical information as outlined in the current annual reports, should be provided in a separate technical supplement. Within this supplement, analysis should focus upon changes that occur annually in Victoria (rather than comparing single years to aggregate time periods).

A separate summary should be prepared for health service consumers, in plain language format that conveys similar information to that previously described, in a manner that allows an informed reader to:

- Establish realistic expectations of the risks associated with surgery;
- Understand the areas where adverse events are likely to occur (along the processes of care/patient journey);
- Provides examples of how improvements contribute to better patient safety; and
- Provides practical suggestions for what they can do to address any concerns with their treating surgeon and health care team.

5.2.10. Annual comparison of hospitals

It is recommended that annual comparison of hospitals be undertaken and reported by VASM to identify unexpected variations in outcome across the Victorian health system.

To generate more practical information, areas of consideration, concern and adverse events identified through the Audit should be aggregated and used as the basis of comparison. Variations between health services should be calculated using Victorian (rather than national) data. Analysis should be undertaken and reported on an annual basis. Interpretation of findings should focus upon trends observed for individual health services (to identify hospitals of concern as well as hospitals who are improving).

5.2.11. Ongoing operational arrangements for VASM

RACS is ideally placed to continue implementation of surgical mortality audits across Victoria. Systems are well established, accepted and supported by surgeons. Adoption of recommendations made as part of the current review (particularly those relating to removal of de-identification for hospital records) will allow VASM to achieve further efficiencies in day-to-day operations. Efficiencies in operational capacity will allow for further improvements to occur in development of audit processes and accommodate foreseeable increases in case reporting (driven by the increase in volume of procedures occurring across the state).

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A1. Surgeon participant survey

The following is a screen print of the survey enumerated to surgeons as part of the 2018 evaluation of VASM (in iPhone or android format)

Victorian Audit of Surgical Mortality - Evaluation 2018

VASM - Surgeon Survey

Aspex Consulting has been commissioned to undertake an independent review of Victorian Audit of Surgical Mortality (VASM). Part of the review process requires feedback from surgeons about VASM processes and any impacts they have had upon surgical practice. Thus, we are seeking

3 minutes of your time to complete this brief survey.

Your responses are confidential. If you require any further information , you can contact Aspex Consulting on 1800 300 802. If you have any concerns about the survey, please contact The Royal Australasian College of Surgeons on (03) 9249 1128.

Thank you for taking the time to participate

1. Which best describes your area of surgical specialty?

- ◯ General (including Trauma/Colorectal)
- ◯ Vascular
- ◯ Urology
- ◯ Neurosurgery
- ◯ Orthopaedics
- ◯ Cardiothoracic
- ◯ Oral/Maxillofacial
- ◯ Ophthalmology
- ◯ Paediatrics
- ◯ Plastics
- ◯ Obstetrics & Gynaecology
- ◯ Otolaryngology Head & Neck
- ◯ Other (please specify)

2. For how many years have you worked as a fully qualified surgeon in Victoria?

- ◯ 2-3 years
- ◯ 4-5 years
- ◯ 6-7 years
- ◯ 8 years (or longer)

3. For approximately how long have you been reporting cases to VASM?

- ◯ 2-3 years
- ◯ 4-5 years
- ◯ 6-7 years
- ◯ 8 years (or longer)

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4. How confidential is VASM?

- ◯ Not at all
- ◯ Not very
- ◯ Somewhat
- ◯ Very
- ◯ Extremely

5. How relevant are the current *items* on the VASM case record form?

- ◯ Not at all
- ◯ Not so relevant
- ◯ Somewhat
- ◯ Very
- ◯ Extremely

6. How useful have you found the individual *feedback reports* provided by VASM?

- ◯ Not at all
- ◯ Not so useful
- ◯ Somewhat
- ◯ Very
- ◯ Extremely

7. How useful have you found the *Case Review Booklets* published by VASM?

- ◯ Not at all
- ◯ Not so useful
- ◯ Somewhat
- ◯ Very
- ◯ Extremely

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8. Has VASM had an influence on any of the following? (tick <u>all that apply for *each* row</u>)

Your decision to operate on certain patients

- ☐ **NO**, not influenced by VASM
- ☐ **YES**, has been influenced by what I **might have to report** to VASM
- ☐ **YES**, has been influenced by **previous feedback** from VASM (to me or other surgeons)
- ☐ **YES**, has been influenced by what I have read in VASM **case studies**

The type of preoperative care you might provide to certain patients

- ☐ **NO**, not influenced by VASM
- ☐ **YES**, has been influenced by what I **might have to report** to VASM
- ☐ **YES**, has been influenced by **previous feedback** from VASM (to me or other surgeons)
- ☐ **YES**, has been influenced by what I have read in VASM **case studies**

The type of surgical approach you might take with certain patients

- ☐ **NO**, not influenced by VASM
- ☐ **YES**, has been influenced by what I **might have to report** to VASM
- ☐ **YES**, has been influenced by **previous feedback** from VASM (to me or other surgeons)
- ☐ **YES**, has been influenced by what I have read in VASM **case studies**

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The type of post-operative monitoring you might undertake with certain patients

- ☐ **NO**, not influenced by VASM
- ☐ **YES**, has been influenced by what I **might have to report** to VASM
- ☐ **YES**, has been influenced by **previous feedback** from VASM (to me or other surgeons)
- ☐ **YES**, has been influenced by what I have read in VASM **case studies**

The way you document clinical information in the patient record

- ☐ **NO**, not influenced by VASM
- ☐ **YES**, has been influenced by what I **might have to report** to VASM
- ☐ **YES**, has been influenced by **previous feedback** from VASM (to me or other surgeons)
- ☐ **YES**, has been influenced by what I have read in VASM **case studies**

The way you discuss cases with your surgical peers

- ☐ **NO**, not influenced by VASM
- ☐ **YES**, has been influenced by what I **might have to report** to VASM
- ☐ **YES**, has been influenced by **previous feedback** from VASM (to me or other surgeons)
- ☐ **YES**, has been influenced by what I have read in VASM **case studies**

The way you evaluate surgical cases within your unit (e.g. M&M meetings)

- ☐ **NO**, not influenced by VASM
- ☐ **YES**, has been influenced by what I **might have to report** to VASM
- ☐ **YES**, has been influenced by **previous feedback** from VASM (to me or other surgeons)
- ☐ **YES**, has been influenced by what I have read in VASM **case studies**

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A2. Discussion guide for consultations

1. How well is VASM understood across the health system?
   a. By surgeons
   b. By health services
   c. By government
   d. By other agencies or organisations

2. How well are other influences on surgical practice understood across the health system?
   a. By surgeons
   b. By health services
   c. By government
   d. By other agencies or organisations

3. How effective is VASM perceived to be across the health system?
   a. By surgeons
   b. By health services
   c. By government
   d. By other agencies or organisations

4. What has prevented other organisations or agencies using information provided by VASM?
   a. Health services
   b. Government
   c. Other agencies or organisations

5. What additional roles could VASM undertake?

6. Could VASM function as a clinical quality registry?

7. Who would be accountable for acting on information provided by VASM?

8. What outcomes would be expected from any additional roles undertaken by VASM?

9. What would VASM need to have a greater influence?

10. What would VASM risk by extending its influence?

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A3. Key stakeholder consultations

The three broad groups of stakeholders were selected for interview including:

DHHS representatives, including:

1. Chief Executive Officer, SCV.
2. Director, Stewardship & Support, Safer Care Victoria (SCV).
3. Chief Executive Officer, VAHI.
4. Chair, Victorian Surgical Consultative Council.
5. Chair, Victorian Consultative Council on Anesthetic Mortality and Morbidity.

ANZASM and other relevant jurisdictional stakeholders, including:

6. Clinical Director, ANZASM.
7. Acting National Operations Manager, ANZASM.
8. Clinical Director Collaborative Hospitals Audit of Surgical Mortality.
9. Acting Manager/ Data Analyst - Special Committees, Clinical Excellence Commission.
10. General Manager of Service Delivery, Victorian Managed Insurance Authority.
11. Grattan Institute, author of Targeting Zero report.

Internal stakeholders within VASM and the Royal Australasian College of Surgeons (RACS), including:

12. VASM Management Committee.
13. Clinical Director, VASM.
14. Project Manager, VASM.
15. Statistical Advisor, VASM.
16. Project Officer, VASM.
17. Chief Operating Officer, RACS.

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A4. Survey respondent characteristics

Figure A4-1: Surgical specialty of survey respondents

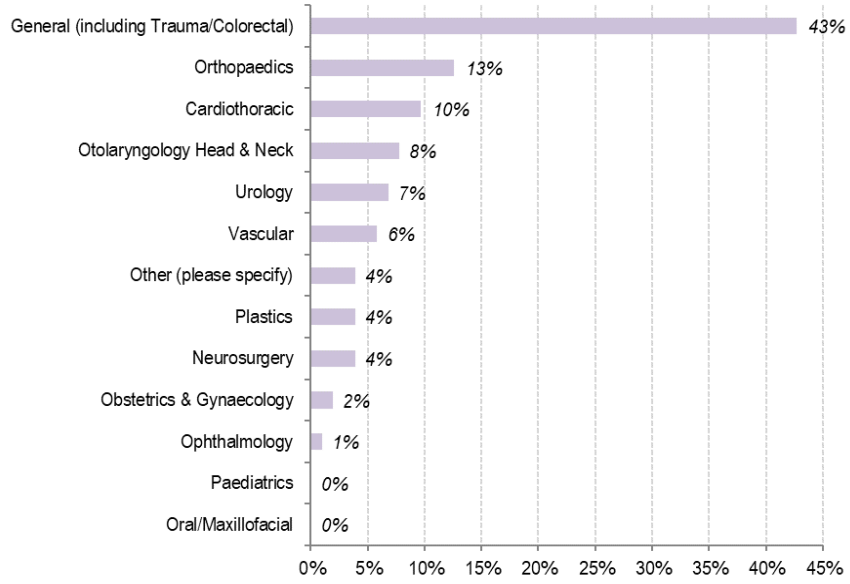

Figure A4-2: Surgical experience of survey respondents

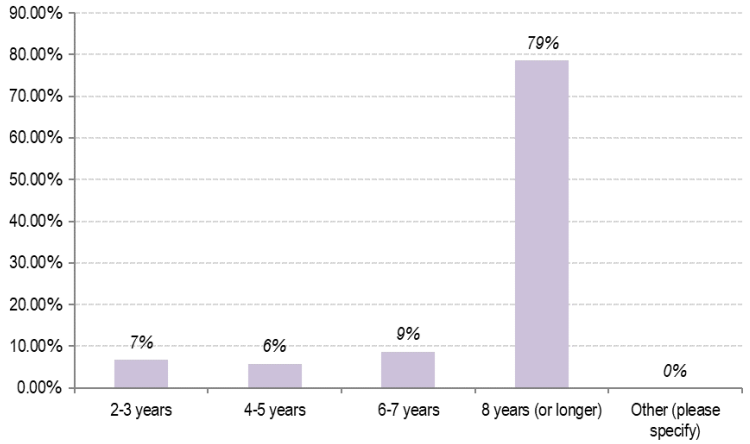

Figure A4-3: Participation in VASM by survey respondents