aspex consulting

Evaluation of the Victorian Audit of Surgical Mortality (VASM)

Royal Australasian College of Surgeons

Final Report

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TABLE OF CONTENTS

Index of Figures

Index of Tables

List of Abbreviations

ANZASM	Australian and New Zealand Audit of Surgical Mortality
ANZData	Australia and New Zealand Dialysis and Transplant Registry
ASA	American Society of Anaesthesiologists
CHASM	Collaborating Hospitals Audit of Surgical Mortality (New South Wales)
CCOPMM	Consultative Council on Obstetric and Paediatric Mortality and Morbidity
CEO	Chief Executive Officer
CME	Continuing Medical Education
CPD	Continuing Professional Development
CRF	Case Record Form
DOB	Date of Birth
DoH	Department of Health
DRG	Diagnostic Related Group
FLA	First Line Assessor/Assessment
ICD	International Classification of Diseases
NOD	Notifications of Death
QA	Quality Assurance
QP	Qualified Privilege
RAAS	Research, Audit and Academic Surgery (Division of the RACS)
RACS	Royal Australasian College of Surgeons
RFQ	Request for Quote
SASM	Scottish Audit of Surgical Mortality
SCF	Surgical Case Form
SLA	Second Line Assessor/Assessment
SOII	Surgical Outcomes Information Initiative
UR	Unique Record
VAED	Victorian Admitted Episodes Data
VASM	Victorian Audit of Surgical Mortality
VCCAMM	Victorian Consultative Council on Anaesthetic Mortality and Morbidity
VMO	Visiting Medical Officer
VSCC	Victorian Surgical Consultative Council
VTE	Venous Thromboembolism
WAASM	Western Australian Audit of Surgical Mortality

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1   Executive Summary

Background and aims of the evaluation

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 a number of surgical mortality audits conducted across Australia under the umbrella of the Australian and New Zealand Audit of Surgical Mortality (ANZASM).

Since its establishment VASM has undertaken a range of activities to promote hospital and surgeon participation, case reporting and assessment, and feedback to a range of stakeholders about the outcomes arising from the audit process. The purpose of this evaluation is to determine the extent to which VASM has achieved its objectives, by gathering information through stakeholder consultation, focusing on:

1. Qualitative analysis of the effectiveness of the relationship and governance arrangements.

2. Qualitative and quantitative (where possible) assessment of the effectiveness of the processes used to collect, maintain and report the VASM data.

3. Qualitative analysis of the effectiveness of communication between VASM and health services/clinicians regarding recommendations arising from the audit process.

The major outcomes of evaluation are focused upon identifying strengths and areas for improvement in relation to: the scope of activities undertaken by VASM; the efficiency and effectiveness of current program operations; and future development to improve the impact of VASM activities.

Methodology

Evaluation findings were based upon assessment of a range of qualitative and quantitative data obtained from a variety of sources, including more than:

- 330 administrative documents;

- 3500 death notifications;

- 1720 first line assessments;

- 300 second line assessments; and

- Surveys and/or individual interviews with 250 stakeholder surgeons or other personnel impacted by the work of VASM.

Interviews were also conducted with representatives of the ANZASM and two other jurisdictional audits of surgical mortality conducted in Australia.

Governance arrangements

The operation of VASM is contracted by the Victorian Department of Health to the Royal Australasian College of Surgeons (RACS). Governance is undertaken by a Management Committee with representatives from the Department of Health, RACS, ANZASM, and a range of surgeon and consumer representatives. The day-to-day operations of the audit are undertaken by a Clinical Director, Project Manager and three other staff (totalling 4.7 EFT personnel). Standard operating procedures are documented and followed to ensure adherence of audit process to established governance arrangements, data management protocols and reporting processes, so that all information reported to and managed by VASM complies with strict Qualified Privilege arrangements ensuring privacy and confidentiality for patients and participating surgeons.

Stakeholders were satisfied with current governance arrangements. College support had been effective in enlisting the interest and securing ongoing participation of surgeons. Current operating procedures were adhered to, protecting the privacy and confidentiality of information. Some "hiccups" in governance arrangements surrounding public statements about findings arising from VASM were noted. It was also acknowledged that ongoing collaboration between VASM and the VSCC will be increasingly important as information arising from the audit process is translated into clinical initiatives to promote improvement in surgical practice and patient outcomes.

Activities and outputs of VASM

Overall performance

Year-on-year analysis of the activities undertaken by VASM has been entirely consistent with those of a newly established program that is now reaching a level of 'maturity'. Early activities were associated with a range of stakeholder input into program development. Over more recent years, activities have focused upon streamlining operational elements of the program and providing reports to individual surgeons and a range of other key stakeholders. Efficiencies have also been observed in the volume of activities undertaken by VASM staff over each successive year of operation. Stakeholders noted that VASM is a "well-oiled machine" that has secure processes in place for managing information and reporting to a range of different audiences. The audit was broadly considered amongst the surgical fraternity to have credibility, independence, and transparent reporting and assessment processes.

Hospital participation

VASM has secured the participation of all public health services in Victoria. Participation from private sector organisations is also increasing despite concerns from some stakeholders that the internal costs of participation may be a disincentive for some of these health services. The most significant ongoing concern among participating hospitals related to the staff time required to re-identify cases requested by VASM in order to locate medical records and/or provided de-identified copies of medical record entries to VASM for second line assessment.

Surgeon participation

The vast majority of Victorian fellows have agreed to participate in the audit process. All fellows will be required to participate under current Continuing Professional Development requirements specified by the College. Current VASM guidelines require submission of a case report within one month of notification to individual treating surgeons. Compliance with these guidelines has improved over the past three years, but remains lower than might otherwise be desired, with 70% of all case reports returned within around two months of the initial request. Surgeons reported that the time taken to re-identify patient names and locate medical records was the most significant impediment to participation in the audit process. Some ongoing concerns regarding the legal implications of participating in the audit and potential for subsequent use of information in legal proceedings was also noted. More specifically:

- The case reporting process was positively regarded by surgeons who had previously submitted a report to VASM (with the exception of the time taken to gather patient information, as previously described).

- The first and second line assessment process was also positively regarded by those who had been involved, with the exception of the level of detail that was provided in many case reports (despite the capacity of the current case reporting forms to collect this information for first line assessment), or in de-identified medical record notes (in the case of second line assessment).

Reliability and validity of current VASM processes

Indicative estimates of inter-rater reliability (using data currently collected by VASM) were encouraging and demonstrated moderate to substantial levels of agreement in relation to ratings of 'issues' associated with patient management (between surgeons and second line assessors working from information in the medical record).

The quality of agreement between surgeons, first line assessors and second line assessors was also encouraging. Moderate to high levels of concordance were observed between the different raters in relation to any 'issues' associated with patient management and likely 'causes' of these issues.

Outcomes and communications from VASM

Surgeon communication and feedback

Around half of all surgeons who had received feedback from VASM about individual case reports were 'satisfied' with the time taken to receive information, the level of detail and the usefulness of suggestions to improve clinical practice. A notable proportion of surgeons were non-committal about rating the quality of information received from VASM about case reports, particularly in areas relating to discussion of findings and opportunities to seek another opinion (possibly reflecting their lack of need to engage in these activities).

Other communications and feedback

Other reports and communications provided by VASM were rated variably by different stakeholder groups. Surgeons viewed case studies most favourably. Non-surgeons receiving information from VASM rated the annual reports most favourably. Access to information on the VASM web-page was viewed least favourably by all groups. Non-surgeons noted that hospitals are dependent upon individual surgeons to contribute any

findings from case reviews to hospital quality improvement processes and expressed a desire to receive some form of de-identified hospital report on an annual basis. VASM staff are currently developing a method of addressing these concerns.

Outcomes arising from the work of VASM

Around a third of all individuals participating in the evaluation process were able to identify some type of change that had been influenced (albeit in part) by information received from VASM. Key changes had related to modifications to clinical care, surgical guidelines, training activities, and hospital policies and procedures. Most stakeholders who were interviewed acknowledged that it was unlikely that VASM would ever be the sole reason to make any changes to improve the quality of patient information. Nevertheless, the information provided from the audit was considered to be a valuable source of 'validation' (based upon professional peer review) to other information that contributed to any surgeon or hospital based decisions to modify clinical practice.

It was also broadly acknowledged that until recent times, VASM had not been in a 'solid' position to inform many changes in clinical practice, as the focus had been upon building a credible and confidential audit process and maximising the participation of surgeons and health services across Victoria. Now that these processes have largely been established, the audit is seen to be in a more 'mature' position to provide credible data that can be used to drive improvements in the quality of care. For example, a number of initiatives such as clinical workshops are currently being planned by VASM and the VSCC to improve the translation of audit findings into quality improvements in patient management.

Future improvements to enhance the work of VASM

A wide range of enhancements were suggested to maximise the future operation and impact of VASM by those that had participated in the evaluation process. These suggestions were taken in the context of the overall findings of the evaluation and used as a basis for 25 suggested areas, grouped into four major areas of ongoing improvement as follows:

1. Maintaining surgeon trust and commitment by:
    i. Promoting early awareness and understanding of VASM;
    ii. Exploring methods of re-engaging disaffected audit participants;
    iii. Emphasising the role of VASM in the broader health system;
    iv. Distinguishing VASM from other surgical registries; and
    v. Communicating challenges to qualified privilege arrangements.

2. Streamlining a range of current audit processes, including:
    i. Clarifying governance for the release of public information;
    ii. Re-investigating requirements for patient de-identification;
    iii. Identifying hospital processes for location of medical records;
    iv. Monitoring electronic submission of case report information;
    v. Exploring criteria for 'levels' of completion in case reporting;
    vi. Strengthening processes for first line assessment;
    vii. Clarifying current case report questions;

    viii. Undertaking specific studies of inter-rater reliability;

    ix. Examining the ongoing 'diagnostic sensitivity' of audit findings;

    x. Validating findings with other sources of data;

    xi. Monitoring and reporting the degree of audit 'coverage';

    xii. Focusing upon emerging patterns of performance;

    xiii. Monitoring outcomes in 'areas of concern'; and

    xiv. Extending analysis to focus upon selected areas of morbidity.

3. Promoting integration of information across the health system by:

    i. Developing summary reports for participating hospitals.

4. Targeting messages identified through the audit, through activities such as:

    i. Promoting seminars to discuss key issues of concern;

    ii. Developing a plain language summary of the annual report;

    iii. Reporting future directions arising from the work of the audit

    iv. Increasing peer-reviewed publications and professional presentations;

    v. Monitoring and exploring methods to enhance the use of the VASM web site.

Summary

In summary, findings from the review indicate that VASM has operated effectively and efficiently within its contracted terms of reference to deliver a peer-review audit process that is acceptable to surgical fellows. High rates of hospital participation and surgeon commitment to the audit process have been achieved. Audit coverage across the private hospital sector is now increasing. Methods of case reporting, case assessment and feedback to a range of stakeholders have been subject to continuous quality improvement to maximise relevance and minimise burden (within the operational constraints imposed upon audit operations). The audit has now achieved a level of maturity in data capture and processing.

VASM is now in a position to build upon current achievements, by:

- Maintaining surgical trust and commitment;

- Streamlining a range of processes;

- Extending analysis of data;

- Promoting integration of information across the health system, and

- Targeting messages identified through the audit to a range of different audiences.

By focusing upon these activities, VASM will demonstrate its relevance and strengthen its capacity to positively impact upon changes in the quality and safety of patient management.

2   Background

2.1   Preamble

VASM is one of a number of surgical mortality audits conducted across Australia under the umbrella of the Australian and New Zealand Audit of Surgical Mortality (ANZASM).

In 2004 the Council of the Royal Australasian College of Surgeons (RACS) endorsed coordinating the roll out of Audits of Surgical Mortality in Australia and New Zealand. To ensure appropriate governance, standardization and consistency, VASM is a component of this bi-national approach and is a member of the ANZASM Management Committee.

The College became responsible for the management of the Western Australian Audit of Surgical Mortality (WAASM) in 2005 following its establishment in 2001. WAASM was modelled on the Scottish Audit of Surgical Mortality, which has been operating since 1988. The College then expanded the program to other states and territories, with ANZASM as the over-arching body.

RACS is in an ideal position to implement VASM and encourage system wide participation from clinicians and health services across the public and private sectors. Notwithstanding, the establishment, implementation and ongoing operation of VASM have been a significant undertaking for the College.

The ultimate value of information and recommendations arising from VASM is intended to be realised through improvements in quality of care and a reduction in the level of mortality (and morbidity) experienced by patients undergoing surgery in Victoria. In this context, the quality of information, timeliness of communication and responsiveness of VASM to the needs of a range of stakeholders is paramount.

2.2   Project aim

The aim of this project was to identify the extent to which the objectives of VASM have been successfully achieved by the RACS. Specifically, the evaluation was commissioned to focus upon the effectiveness of[1]:

- Data collection, maintenance and reporting processes;
- Communication between VASM and clinicians/health services in relation to recommendations arising from the audit process; and
- Relationship and governance arrangements supporting the ongoing implementation of VASM by the RACS.

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[1] As specified in Section 3.1 of the Request for Quote.

2.3 The Victorian Audit of Surgical Mortality

As outlined in the Request for Quote (RFQ, Section 2.3, p.4) for this project, "the objective of VASM is 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.

"... The audit process is designed to highlight system and process errors and trends in deficiencies of care. It is intended as an educational rather than a punitive exercise."

"If VASM receives notifications of deaths that have occurred following discharge from hospital but within 30 days of a procedure or inpatient stay under a surgical unit, these cases will also be reviewed."[2]

The process, outlined in Figure 1 below, can be summarised as follows:

- The clinical details pertaining to the management of each case are collected by a standard, structured proforma (the surgical case form (SCF)), completed by the treating surgeon. The surgeon is asked to document a matrix covering:

  ▸ Whether the patient was admitted for terminal care;

  ▸ Whether there were any clinical incidents during the care of the patient;

  ▸ The perceived impact of the incident (made no difference to the outcome, may have contributed to death or caused death of a patient who would otherwise have been expected to survive);

  ▸ Their perception of the preventability (definitely, probably, probably not or definitely not preventable); and

  ▸ The area most responsible for the incident (surgical team, another clinical team, hospital or other).

- The completed case record form is returned to VASM where it is de-identified and sent for first-line assessment by a surgeon from the same surgical specialty, but from a different hospital. This means the first-line assessor is unaware of the name of the deceased, the treating surgeon or the hospital where the death occurred.

- The first-line assessor completes the same assessment matrix as the treating surgeon. There are two possible outcomes of this first-line assessment:

  ▸ The information provided by the treating surgeon was adequate to reach a conclusion about the management of the case and to identify any issues of management, if present.

  ▸ A further, in depth, assessment (second-line assessment or case note review) is necessary either:

    – To clarify issues of patient management identified or suspected by the first-line assessor, or

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[2]   VASM Annual Report, 2008

– Because the information provided by the treating surgeon was inadequate to reach a conclusion.

Second-line assessors are selected using the same criteria as first-line assessors and use the same assessment matrix, but informed by the patient's (de-identified) case notes/medical record.

2.4 Requirements of the current evaluation

The purpose of this evaluation is to determine the extent to which VASM has achieved its objectives, by gathering information through stakeholder consultation, focusing on:

- Qualitative analysis of the effectiveness of the relationship and governance arrangements.

- Qualitative and quantitative (where possible) assessment of the effectiveness of the processes used to collect, maintain and report the VASM data.

- Qualitative analysis of the effectiveness of communication between VASM and health services/clinicians regarding recommendations arising from the audit process.

The major outcomes of evaluation are focused upon identifying strengths and areas for improvement in relation to:

- The scope of activities undertaken by VASM;

- The efficiency and effectiveness of current program operations; and

- Future development to improve the impact of VASM activities.

Figure 1: Surgical mortality audit process[3]

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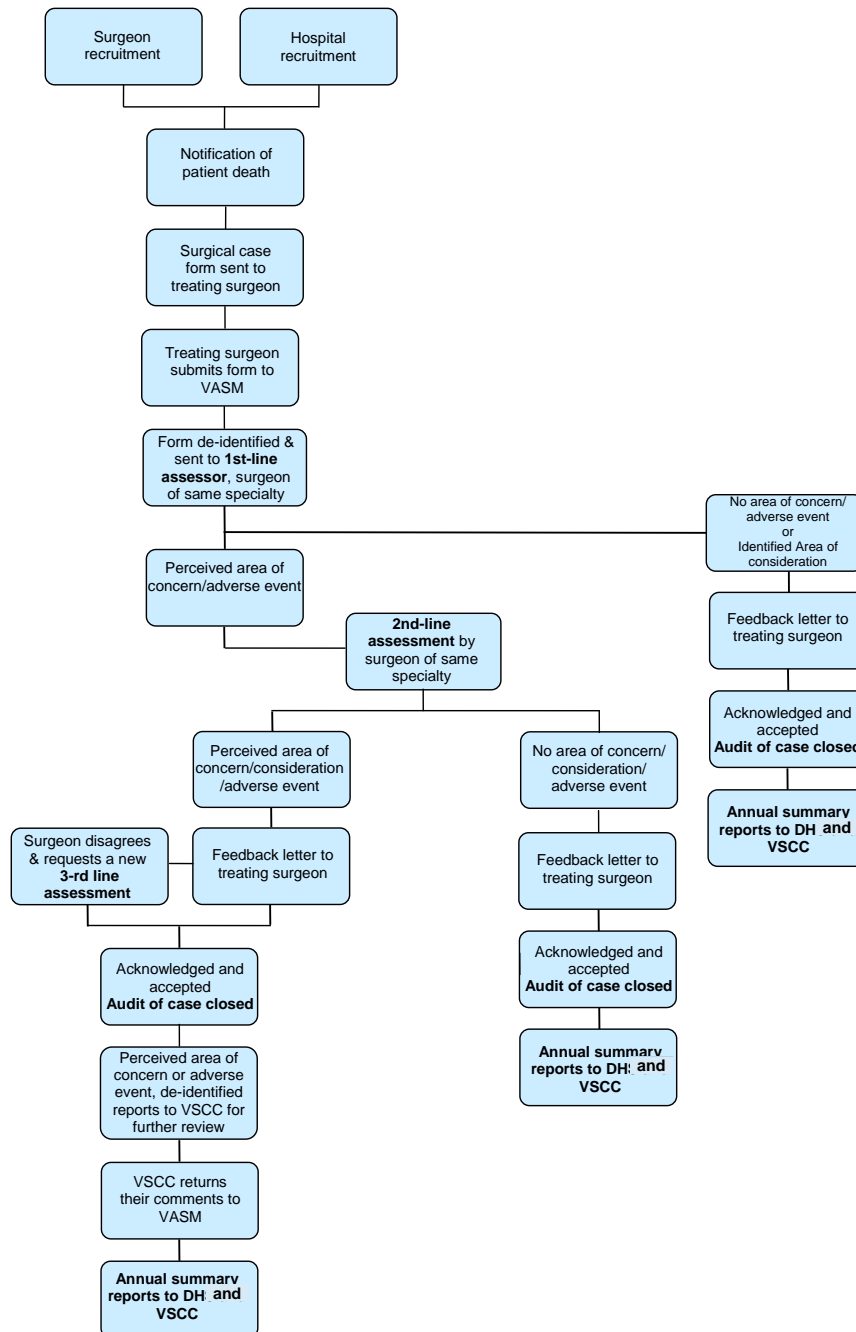
3   Evaluation methodology

The project approach is illustrated in Figure 2 and is outlined in detail in the following sub-sections, which constitutes the methodology implemented for the evaluation process.

Figure 2:   Evaluation methodology
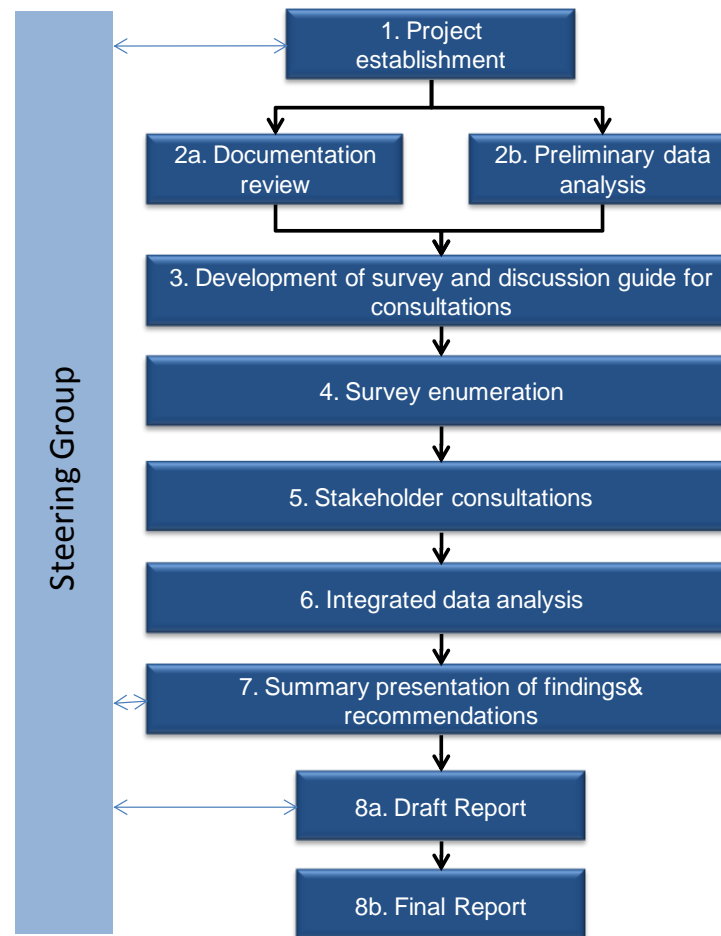
3.1   Project establishment

The purpose of this stage was to ensure that there was a common set of expectations with respect to the methodology, key deliverables, project administration and timelines. The following activities were undertaken:

- An initial client meeting to discuss and confirm project scope and discuss and finalise the methodology to ensure consistency with project scope requirements. A working session was conducted with key RACS staff to ensure that all issues were canvassed;

- Confirmation of management structures (i.e., VASM staff and/or Steering Committee/Group), their terms of reference and any meeting schedules established for the project;

- Identification of key day-to-day contacts within the College and methods and timelines for communication about project activities and outcomes;

- Development a bullet point list of key issues that should be addressed throughout the course of the review;

- Finalisation of a list of key stakeholder contacts together with appropriate methods and timelines for communication about key project activities; and

- An agreed work plan/evaluation framework for the project.

3.2   Preliminary documentation and data analysis

This stage of the project involved an overview of available documentation[4] relating to the introduction of VASM, including (but not necessarily limited to):

- Contracted deliverables required by the Department of Health;

- VASM policy and procedure documents;

- VASM agendas and minutes of any relevant meetings;

- Documented outcomes of case reviews;

- Evidence of quality assurance and quality improvement activities;

- Relevant correspondence with key stakeholders;

- Annual reports;

- The results of internal reviews of the program undertaken by the College; and

- Other documentation produced to support the introduction of the audit (e.g., Hospital Reporting Guides, Case Note Reviews, Assessor Guidelines etc).

Key fields of VASM datasets were also interrogated to understand the level of participation by health services, the quality of information received from clinicians/health services and the timeliness and quality of case review information recorded by VASM.

The de-identified details of each death notification, case report, first and second line assessment, the contents of each document, and every minuted item of discussion occurring during meetings was coded and described according to whether they represented activities relating to: inputs received by VASM; processes undertaken by VASM; or, outputs generated from VASM. In total:

- 70 sets of minutes were reviewed;

- 260 documents considered "other materials" were classified;

- 3498 death notifications were assessed;

- 1717 first-line assessment reports were analysed; and

- 308 second-line assessment reports were analysed.

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[4]   Pending relevant confidentiality agreements and rights of access to VASM data

3.3   Development of survey and discussion guide

3.3.1   SURVEY DEVELOPMENT

A survey was constructed to 'fill the gaps' in available data about the impact of key processes and outcomes achieved by VASM upon a range of stakeholders including:

- Surgeons and other clinicians involved in case submission and review (to date);

- Surgeons and other clinicians who had not been involved (and/or refused to participate) in case submission and review (to date);

- Health service executives and other key staff participating in reporting to VASM; and

- Health service executives and other key staff who had decided not to participate in reporting to VASM at the time of evaluation.

As specified in the request for tender (RFT: Section 3.3, p.5) the survey focused upon "knowledge, and satisfaction with VASM activities ... the relevance and applicability of the VASM activities ... and ... perceived areas for improvement in relation to the range of activities undertaken by the VASM and the overall model of operation." A copy of the survey is provided as Appendix A.

3.3.2   SURVEY ENUMERATION

Following development and endorsement of survey items, the survey was converted to an electronic format and implemented/enumerated to key stakeholder groups. Following amendments to enhance the content and flow of questions, the survey was finalised and dispatched to all stakeholder groups. Letters of introduction and invitation to complete the survey were dispatched by the College to individual members using standard channels of communication (email and written letters). Correspondence also contained an electronic link to the on-line survey for easy access. A 1800 telephone number and email contact was provided to address any queries from potential respondents about the survey. Alternative, e-mail or hard copy/fax back surveys were also offered to stakeholders who were concerned about identifiability/privacy or confidentiality of electronically submitted data.

The survey ran 'live' for 4 weeks. A reminder to complete the survey was dispatched to relevant specialists two weeks prior to the closure of the survey.

Data from the survey was received at regular intervals by the evaluation consultants. The consultants tracked the response rate and provided suggestions for specific feedback to relevant groups to enhance participation at the 'reminder' period (two weeks prior to survey closure).

3.3.3 SURVEY RESPONSE CHARACTERISTICS

A total number of 214 individuals responded to the survey, comprising 162 surgeons (representing 16% of the total number of surgeons in Victoria5).

Survey responses were received in 2 waves, corresponding to an initial notification (31 March, 2011), and a reminder notification (circa 17 April 2011) to registered surgeons by the College. Sixty-two percent (62%) of all survey responses were received following the first wave of notification, and the remaining 38% were received between the second notification and survey closure (Figure 3).

Figure 3: Responses to each wave of survey notification (n = 214)

Date of survey completion
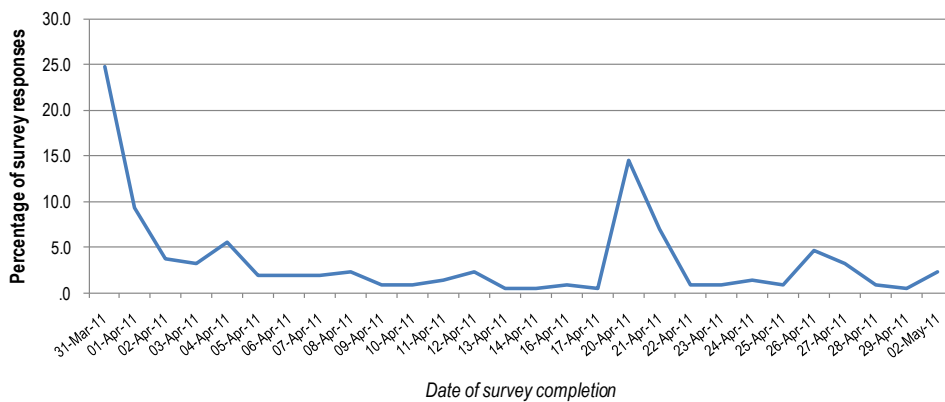
A survey completion rate of 91% was obtained across all respondents. The average time to complete the survey was 10 minutes (median response time: 6 minutes), ranging from a minimum of zero minutes to a maximum completion time of eight hours and sixteen minutes (Figure 4)[6].

Figure 4: Time taken to complete survey by individual respondents (n = 214)
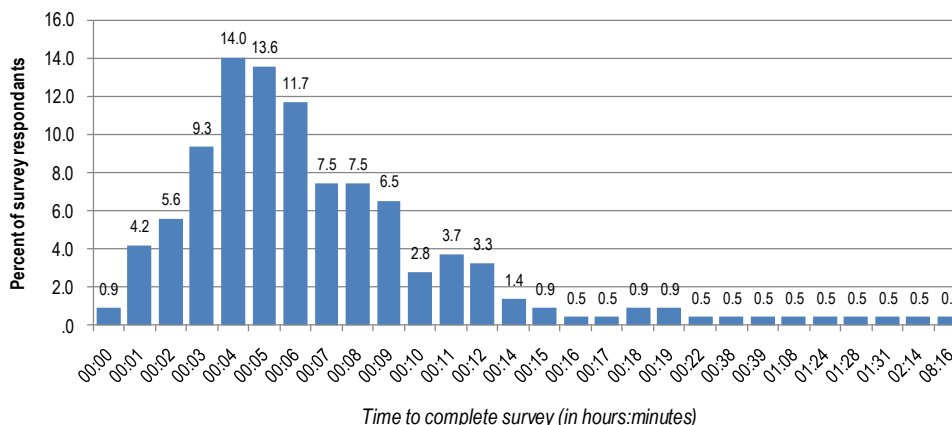
Time to complete survey (in hours:minutes)

3.3.4 RESPONDENT CHARACTERISTICS AND SAMPLE GENERALIZABILITY

The significant majority of survey respondents were surgeons, followed by health service management representatives (Figure 5).

Figure 5: Distribution of survey respondents by professional occupation (n = 212)

Which group best describes your main professional occupation?

Occupation	Percentage
Surgical	76%
Health Management	15%
Nursing	5%
Other (please..	2%
Medical	1%

Percentage of survey respondents
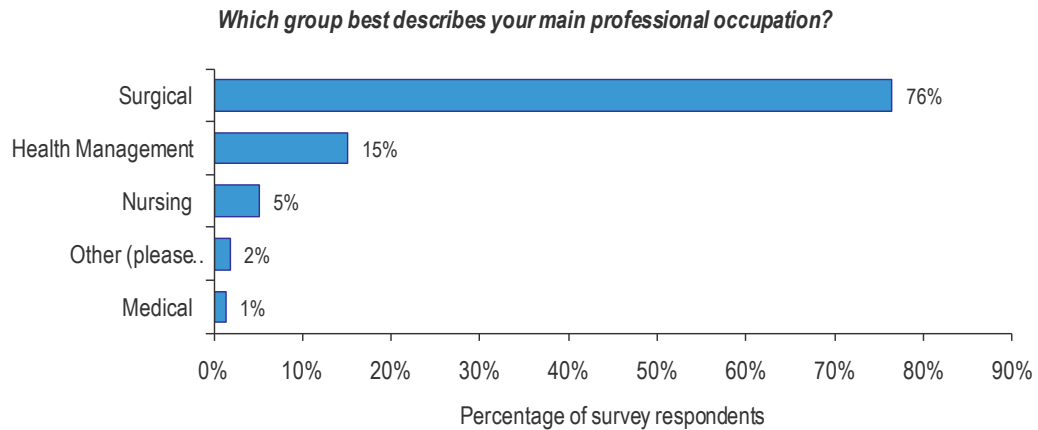
Responses from different surgical specialties were broadly representative of the Victorian surgical workforce (Figure 6), with the majority of responses coming from General Surgeons, Orthopaedic Surgeons, and Urological Surgeons (Table 1). Three specialty groups were not represented in the survey responses including Gynaecologists, Ophthalmologists and Oral/Maxillofacial Surgeons.

Figure 6: Distribution of survey respondents by surgical specialty (n = 160)

What is your main area of surgical specialty?

Specialty	Percentage
General Surgery	46%
Orthopaedic Surgery	18%
Urology	8%
Vascular Surgery	6%
ENT Surgery	6%
Other specialty	4%
Cardiothoracic Surgery	4%
Neurosurgery	4%
Plastic Surgery	3%
Paediatric Surgery	2%
Oral/Maxillofacial Surgery	0%
Ophthalmology	0%
Gynaecology	0%

Percentage of survey respondents
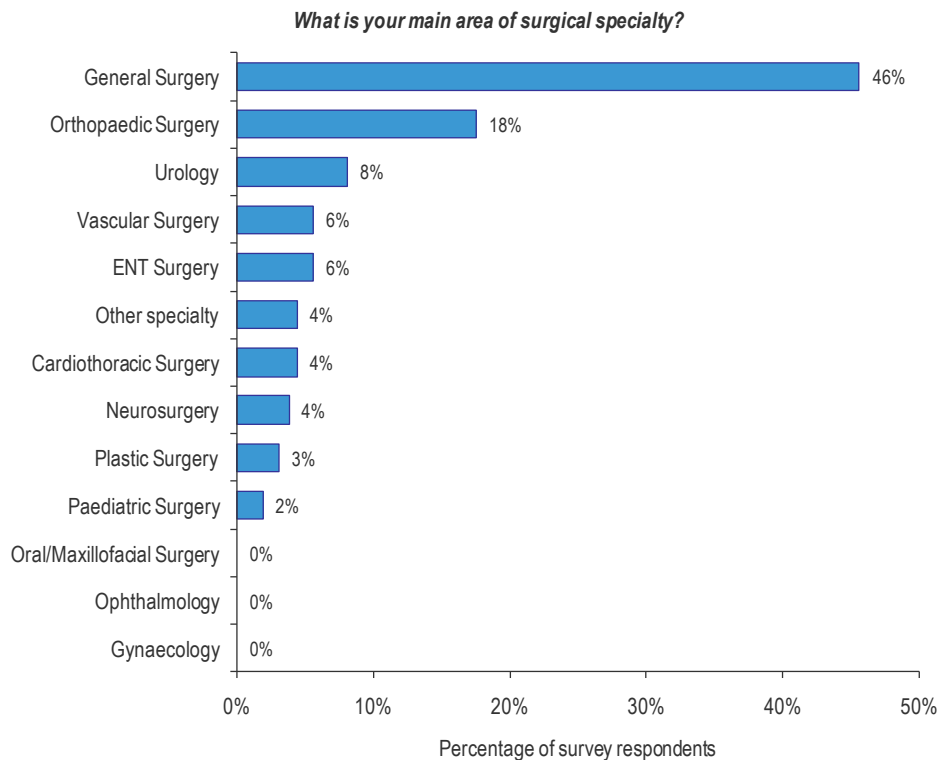
Almost all survey responses were provided by qualified surgeons, identifying as surgical consultants or fellows (Figure 7).

Figure 7: Distribution of survey respondents by surgical experience (n = 162)

What is your current level of surgical experience?

Category	Percentage
Consultant	89%
RACS Fellow	9%
Other experience	1%
International Medical Graduate	1%
Registrar	1%

Percentage of survey respondents
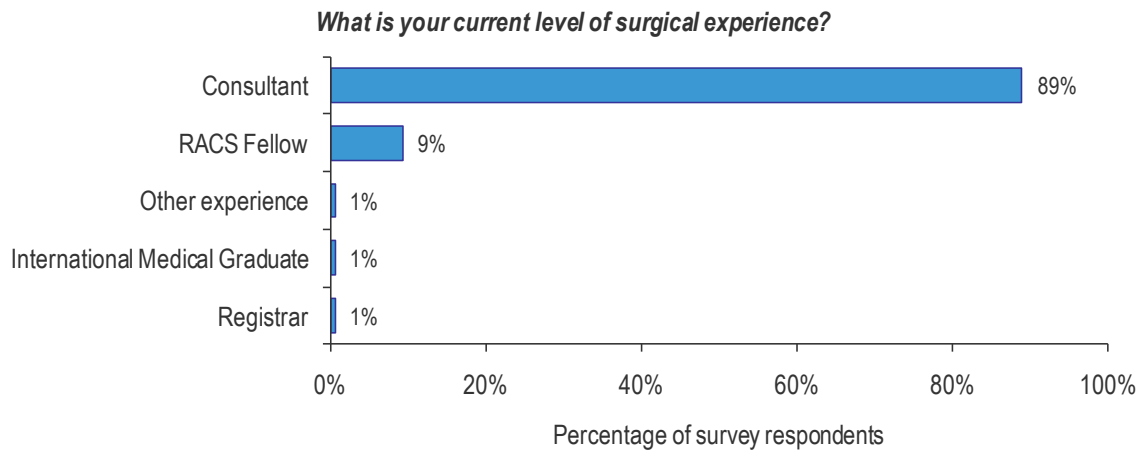
Around half of all surgical respondents to the survey reported having more than 20 years' professional experience (Figure 8). An additional 30% of surgeons reported having between 10 and 20 years of professional experience.

Figure 8: Distribution of surgical respondents by duration of employment (n = 160)

How many years have you been working as a fully qualified surgeon/other professional?

Category	Percentage
More than 20 years	44%
Between 11-20 years	30%
Between 1-5 years	14%
Between 6-10 years	13%

Percentage of survey respondents
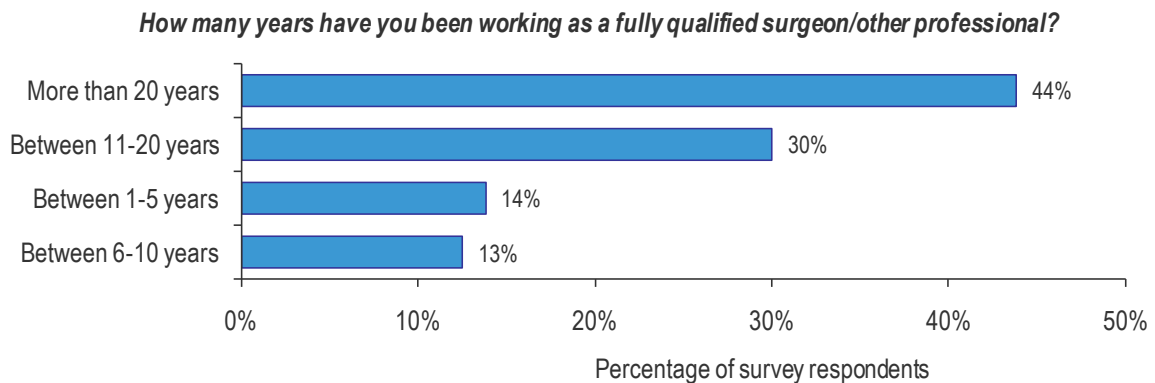
The overwhelming majority of surgical respondents reported working in public (92%) and private (81%) sectors. A smaller proportion reported working in a variety of other areas including academia, private practice rooms, government and other administration, or had retired from surgical practice (Figure 9).

Figure 9: Surgical respondents by areas of health sector employment (n = 159)

In which areas of the health sector do you work?

Public hospital	92%
Private hospital	81%
Other areas	11%

Percentage of survey respondents
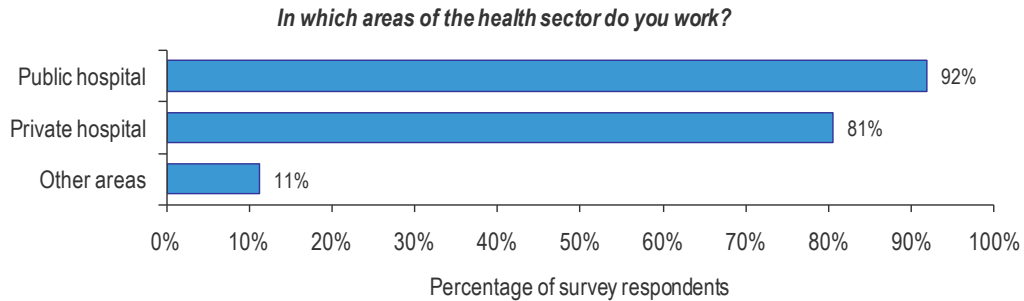
More than half of all surgeons (52%) indicated spending the majority of their working time in the public sector, with a further third (39%) spending the majority of their time in private sector employment (Figure 10).

Figure 10: Surgical respondents by most frequent area of employment (n = 159)

Which area of the health sector do you spend most of your time?

Public hospital	52%
Private hospital	39%
Other areas	9%

Percentage of survey respondents
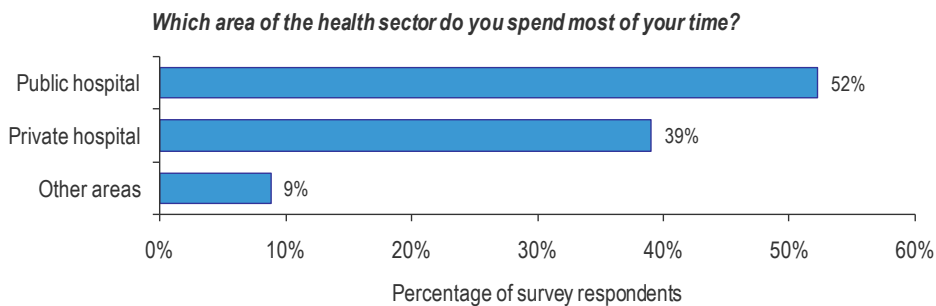
The geographic representation of surgeons responding to the survey was also broadly consistent with the Victorian workforce (Figure 11). A lower proportion of responses were received from surgeons working in metropolitan areas and a higher proportion of responses were received from those working in rural or remote locations, than would otherwise have been expected according to RACS data (Table 1).

Figure 11: Distribution of surgeon respondents by geographic area (n = 157)

In which region do you spend most of your time working?

Metropolitan Melbourne	66%
Barwon South-Western Region	13%
Hume Region	8%
Grampians Region	6%
Gippsland Region	4%
Loddon Mallee Region	2%
Interstate	1%
International	0%

Percentage of survey respondents
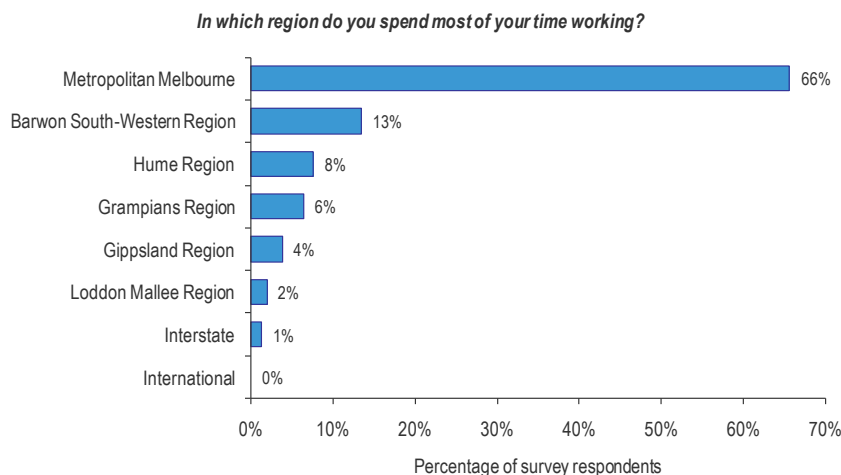
Table 1:   Analysis of survey respondents by specialty, experience and location

DEMOGRAPHICS	NUMBER	% WORKFORCE	% SAMPLE	REPRESENTATION
SPECIALTY				
General surgery	*341*	*33.7%*	*45.6%*	*Over*
Orthopaedic surgery	228	22.6%	17.5%	Under
Plastic surgery	83	8.2%	3.1%	Under
Urology	83	8.2%	8.1%	-
Otalaryngology/Head and Neck	77	7.6%	5.6%	Under
Neurosurgery	50	4.9%	3.8%	Under
Cardiothoracic surgery	49	4.8%	4.4%	Under
Vascular surgery	*39*	*3.9%*	*5.6%*	*Over*
Ophthalmology	29	2.9%	0%	Under
Paediatric surgery	23	2.3%	1.9%	Under
Oral/Maxillofacial surgery	5	0.5%	0%	Under
Obstetrics and gynaecology	2	0.2%	0%	Under
Other surgery	2	0.2%	4.4%	NA
Subtotal specialties	*1011*	*100%*	*100%*	
EXPERIENCE				
Consultant	*940*	*93%*	*98%*	*Over*
Other	33	3%	1.2	Under
Advanced Surgical Trainee	21	3%	0.6%	Under
Subtotal experience	*994*	*100%*	*100%*	
GEOGRAPHIC LOCATION				
Capital cities	1170	76%	66%	Under
Other metropolitan centres	*76*	*5%*	*34%*	*Over*
Large rural centres	*199*	*13%*		
Small rural centres	*55*	*4%*		
Unclassified location	34	2%		
Subtotal location	*1534*	*100%*	*100%*	

3.3.5   WEIGHTING OF SURVEY RESPONSES

A decision not to weight survey responses for subsequent analysis was made on the following grounds:

- The aim of the survey was to determine perceptions about the operations and impact of VASM across a range of surgical specialists;

- The relative proportion of responses by surgical specialty and geographic area of employment across Victoria was broadly consistent with the known workforce data;

- Attempts to 'correct' data through weighting of survey responses (according to geographic, and/or surgical specialty distribution[7]) may artificially distort the findings by modifying 'real' differences in the perceptions of surgeons relating to VASM (e.g., between specialty groups, and across different geographic regions).

Accordingly, responses to each question were analysed for differences between:

- Geographic location (metropolitan vs non-metropolitan);

- Professional group (surgeons vs others, health service management vs others);

- Years of experience (those working more than 20 years vs others); and

- Area of major employment (public vs private sector).

Where significant differences existed, these were subsequently reported[8].

3.3.6   STAKEHOLDER DISCUSSION GUIDE

A discussion guide was developed following review of existing information (documents and data), outlining key questions to stakeholders targeted for consultation during the review. The guide focused on:

- Governance arrangements implemented to support the work of VASM;

- Levels of participation by surgeons and public hospitals across Victoria;

- Levels of participation by surgeons and private hospitals across Victoria;

- Processes established for data collection, storage and analysis;

- Conformance of data collections to agreed standards, regulations and legislative requirements;

- Processes established to review cases and provide feedback to surgeons in an ongoing and timely manner;

- Processes established to identify and benchmark (where appropriate) sentinel cases and (actual or potential) case clusters across Victoria and with other jurisdictions;

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[7]   It must also be noted that very small numbers of particular surgical specialties exist at a state-wide level. Attempts to weight data on such small samples are also highly likely to distort subsequent findings.

[8]   For the purposes of demographic analysis, each of the major characteristics were dichotomised and correlated with key response variables. Significant influences of particular demographic characteristics are reported together with their direction of influence (i.e., positive or negative association) and the significance of any association.

- Processes associated with provision of advice about system-wide issues requiring attention by relevant stakeholders;

- Processes established, key outcomes and the perceived utility of reports provided to different stakeholder groups; and

- Changes in policy or practice ascribed, attributed or otherwise informed by the work of VASM over the past three years.

A copy of the discussion guide is included as Appendix B.

3.4   Stakeholder consultations

The RFQ (Section 3.4, p.6) required that "a number of interviews will be conducted with key stakeholder representatives such as management committee members, VASM department staff, ANZASM department staff, hospital surgical leaders, safety and quality hospital staff, key associations and professional organisations such as department of Health, Victorian Surgical Consultative Council and the College Council to explore issues arising from document analysis and broader stakeholder surveys. The most appropriate methods of engaging key stakeholder groups will be specified prior to the process of consultation."

Consultations were also undertaken with a number of other jurisdictions undertaking similar activities to VASM in order to compare key issues encountered and outcomes achieved following introduction of state-wide audits of surgical mortality (i.e., Western Australia and New South Wales). Selection of comparator jurisdictions was undertaken in conjunction with the College.

A total of 43 consultations were undertaken using a variety of formats deemed most suitable to the relevant stakeholder groups (i.e., face-to-face meeting, teleconference, email consultation, group consultation, and attendance, presentation, and consultation at pre-designated meetings). A final list of key stakeholders for consultation was decided in conjunction with the College and included representatives from:

- VASM Management Committee members;

- VASM and ANZASM staff;

- Public sector leaders;

- Private sector representatives;

- Safety and Quality staff in hospitals;

- Inter-jurisdictional audit committees;

- Department of Health;

- Reporting surgeons;

- First Line Assessors;

- Second Line Assessors; and

- Non-participating surgeons.

3.5   Integrated data analysis

Data gathered throughout the evaluation were assessed against each of the key areas of enquiry specified by the College. A summary of the types of evidence anticipated to inform each evaluation question specified in the RFT is presented in Table 2.

Table 2:   Evidence used to address key evaluation questions

FOCUS OF EVALUATION	QUALITATIVE DATA			
			QUANTITATIVE DATA	
	Document review	Stakeholder consultation	VASM data	Other data (if available)
Key outcomes and areas for improvement in the scope of activities undertaken by VASM	✓	✓	✓	✓
Areas of strength and improvement to promote efficient operation of the VASM audit program	✓	✓	✓	✓
Recommendations to promote the future operation and impacts of VASM activities.	✓	✓		

Qualitative and quantitative data were separately analysed (described below) and cross validated (compared) to determine the strength and consistency of evidence associated with key findings from the evaluation.

3.6   Summary and presentation of findings

A summary of findings and recommendations of the evaluation was prepared, together with a Draft Report outline for discussion with the College.

3.7   Draft and final reporting

A draft report was prepared outlining the:

- Background to the review;
- Methodology of the review;
- Key findings, relating to the:
    - Scope of audit operations;
    - Governance and administration arrangements;
    - Major outcomes and achievements of the audit;
    - Hospital and surgeon participation;

> ▸ Data collection and analysis;

> ▸ Feedback, reporting and communication;

> ▸ Suggestions for future improvements to the audit; and

- Recommendations to support ongoing implementation by RACS.

Following feedback from the College, the report was finalised, submitted and approved by the College, concluding the project.

4 VASM Governance and administration

4.1 Background to Surgical Audits

The surgical audit system now operating across Australia has been adapted from work undertaken in Scotland. Surgical mortality audits in Scotland have a longstanding history. The Lothian Surgical Audit was introduced over 50 years ago. The Scottish Audit of Surgical Mortality (SASM) was commenced in 1994, amalgamating a number of different audits into one national approach. SASM identifies all deaths that occur in hospital under the care of a surgeon, whether or not an operation has taken place. SASM forms are voluntarily completed by the relevant surgeon and where appropriate the anaesthetist.

In Australia, the concept of surgical audits was first adopted by Western Australia in 2001 which commenced a pilot based on the SASM and managed by the University of Western Australia. In 2005, management of the audit was transferred to the College and became the first of the State/Territory surgical audits that now contributes to ANZASM.

4.2 Victorian Surgical Consultative Council

Historically, the responsibility for review of causes of avoidable mortality and morbidity was vested with the Victorian Surgical Consultative Council (VSCC). The VSCC was established as a Ministerial Consultative Council in 2001 under the Health Act 1958 with the aim of continuously improving the safety and quality of surgery in the State of Victoria.

By 2007, Victoria was the only Australian jurisdiction that was not part of the national audit of surgical mortality. Accordingly, a decision was made to establish a separate body, consistent with the other regional bodies, to take specific responsibility for review of all deaths associated with surgical care across the State, thereby bringing Victoria into alignment with national audit process.

Following early discussions between the VSCC, the Department of (then) Human Services and the Royal Australasian College of Surgeons, it was agreed that a Victorian Audit of Surgical Mortality (VASM) would be established and assume primary responsibility for reviewing all surgical deaths. The VSCC would continue to investigate causes of surgical morbidity, and would review a smaller selection of de-identified (second-line) assessments referred from VASM, together with aggregated annual reports summarising all cases reviewed by the audit.

4.3 The Victorian Department of Health

In accordance with previous discussions, the Department of Health Victoria contracted with the Royal Australasian College of Surgeons, to establish and administer VASM in a manner that was consistent with other jurisdictional surgical audits. The initial contract (2007-10) provided $1.9 million funding to establish and operate VASM, and specified requirements to ensure strict confidentiality in reporting and data management, together with a number of regular reports to account for activities undertaken by the audit (described below). This contract was subsequently renewed (2010-13) with an additional $2.6 million funding to support the ongoing operation of the audit.

4.4 The Royal Australasian College of Surgeons

The Royal Australasian College of Surgeons (RACS) is responsible for training surgeons and maintaining surgical standards in Australia and New Zealand. As part of its responsibility for maintaining surgical standards and professional development, the College administers the Australian and New Zealand Audit of Surgical Mortality (ANZASM) through its Board of Research, Audit and Academic Surgery.

4.4.1 THE AUSTRALIAN AND NEW ZEALAND AUDIT OF SURGICAL MORTALITY

ANZASM is an independent, external, peer review of surgical mortality covering all states and territories of Australia and New Zealand. Separate audits of Surgical Mortality are funded by individual state or territory Departments of Health in Western Australia, Victoria, South Australia, Queensland, Tasmania, Australian Capital Territory and the Northern Territory. In New South Wales, the state's Clinical Excellence Commission independently manages a Collaborating Hospitals Audit of Surgical Mortality (CHASM). In all cases, data is reported from the individual state audits to ANZASM. RACS supports and encourages participation in both state and national surgical audit programs as an integral component of continuing professional development.

ANZASM, which was modelled on the Western Australian audit, was developed to support and guide the advance of surgical audits across Australian and New Zealand jurisdictions by ensuring consistency in governance arrangements, processes and standards of data collection, analysis and reporting.

4.4.2 THE VICTORIAN AUDIT OF SURGICAL MORTALITY

VASM was established by RACS under the guidance of ANZASM in accordance with a number of key principles involving:

- A review of all deaths associated with surgical care;

- A commitment to timely notification of death and timely assessment;

- Case assessments that are undertaken by surgical peers;

- Provision of direct feedback to the treating surgeon;

- Provision of feedback that is educational rather than a punitive in nature;

- Identification of system and process errors and trends in surgical mortality; and

- De-identified publication of the outcomes arising from cases note reviews for the purposes of highlighting issues and/or alternative approaches to surgical care.

Terms of reference

Terms of reference for VASM are defined as key deliverables under the contract between RACS and the Victorian Department of Health. The contract specifies that the College is required to:

- Establish a governance model to facilitate the operational aspects of delivering VASM in Victorian hospitals;

- Ensure a process of data collection, analysis, storage and reporting that conforms to agreed standards for data definitions, confidentiality and privacy;

- Facilitate a stream-lined peer review process to ensure feedback to surgeons on Individual cases;

- Provide de-identified case review notes to all surgeons on a regular basis;

- Ensure a state-wide implementation of VASM in Victorian public hospitals;

- Provide advice to the department, surgeons, health services and consumers on emerging issues requiring system wide interventions and modifications;

- Provide confidential, specific reports to participating hospitals, the Department and the Minister for Health, including:
  - Performance Indicator reports on a six monthly basis;
  - Annual budget expenditure report;
  - Annual hospital reports that provide a comprehensive assessment of the data including an analysis of emerging trends within the data, and explanatory text;
  - Annual reports to the Victorian Surgical Consultative Council (VSCC); and

- Prepare annual public reports in a lay format that provide demographic and clinical characteristics of patients who have died following surgery.

The College has established key governance arrangements and administrative processes to ensure that these outcomes are delivered.

Qualified privilege arrangements

In order to maximise clinical participation in clinical quality improvement activities, most States and Territories in Australia, including Victoria, have enacted Commonwealth 'qualified privilege' (QP) legislation, which protects them from potential litigation when engaging in audit activities. In effect, QP exists to encourage full and frank disclosure and involvement in the quality assurance activities. The use of the term "privilege" reflects the legal principle which enables a person to resist the disclosure of certain documents in a legal context.

QP coverage at a national level was applied for by ANZASM in August 2005 and enables ANZASM to be registered as a Quality Assurance (QA) activity by the Australian Government Department of Health and Ageing.

VASM has developed a specific guide for hospitals, which explains the responsibilities stemming from QP legislation for the appropriate management of audit information.

VASM Management Committee

The VASM Management Committee is a regularly constituted committee to represent the professional, academic and research interests of surgeons and trainees in Victoria. Membership comprises:

- The Clinical Director of VASM;

- Fellows of the College representing each surgical specialty area;

- A representative from the Royal Australasian College of Medical Administrators;

- Up to two representatives from Victorian Department of Health;

- Up to two representatives from the Victorian Surgical Consultative Council; and

- Up to two consumer representatives.

In addition, project staff from VASM, ANZASM and Victorian Department of Health may attend in a non–voting capacity. Members can serve for up to 3 years with the ability to be re-appointed for two further 3-year terms. The Committee is required to meet at least every two months.

The Terms of Reference for the Management Committee reflect those specified for VASM, and require that members:

- Oversee the Audit's contractual services, by:
  - Developing appropriate management and administrative structures,
  - Enlisting the participation of hospitals and surgeons, and
  - Ensuring timely reporting of audit outcomes.
- Endorse all reports and publications of generated by VASM;

- Establish the future directions of the Audit and identify resources required to meet them;

- Determine any issues related to Qualified Privilege or Victorian Privacy Legislation;

- Determine the response to any serious issues identified through the audit process;

- Collaborate with the Victorian Surgical Consultative Council;

- Report to the ANZASM Steering Committee; and

- Review regular reports to the Victorian Department of Health.

VASM staffing arrangements

Original VASM staffing arrangements comprised a Clinical Director, a Project Manager, two Project Officers, one Administrative/Research Officer and one 40-week student placement (Table 3). An additional Project Officer has been recently employed under the new contract arrangements with the Department of Health to assist with private sector implementation.

Table 3:   VASM staffing arrangements

POSITION	NO OF STAFF	EFT[9]	COMMENCED
Project Manager	1	1.0	September 2007
Clinical Director	1	0.3	December 2007
Project Officer	2	1.0	December 2007
Administrative Officer	1	1.0	February 2008

Staff conduct the routine operations of the audit under the guidance of the VASM Management Committee. On a day-to-day basis, VASM project staff report to the Project Manager and to the ANZASM Bi-National Audit Coordinator. Staff meet on a fortnightly basis to discuss key processes and future developments related to audit activities.

Standard Operating Procedures

VASM has developed a *Standard Operating Procedure* manual to provide written guidelines about key activities undertaken as part of the audit. This manual is designed to standardize processes and assist staff members in understanding:

- Governance and management structures;

- Staff recruitment process;

- VASM publication and approval process;

- Procedures for information gathering including approved templates;

- Procedures for data management;

- A consistent approach to managing queries about the audit;

- Standards for written and verbal correspondence;

- Hospital and surgeon enrolment processes;

- Approaches to data analysis and reporting; and

- Administrative process for maintaining participant contact details, filing and archiving.

A summary of the governance and administrative arrangements established to support the work of VASM is presented in Figure 12.

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[9] Note: EFT refers to Effective Full Time employees.

Figure 12: VASM governance and administrative arrangements[10]
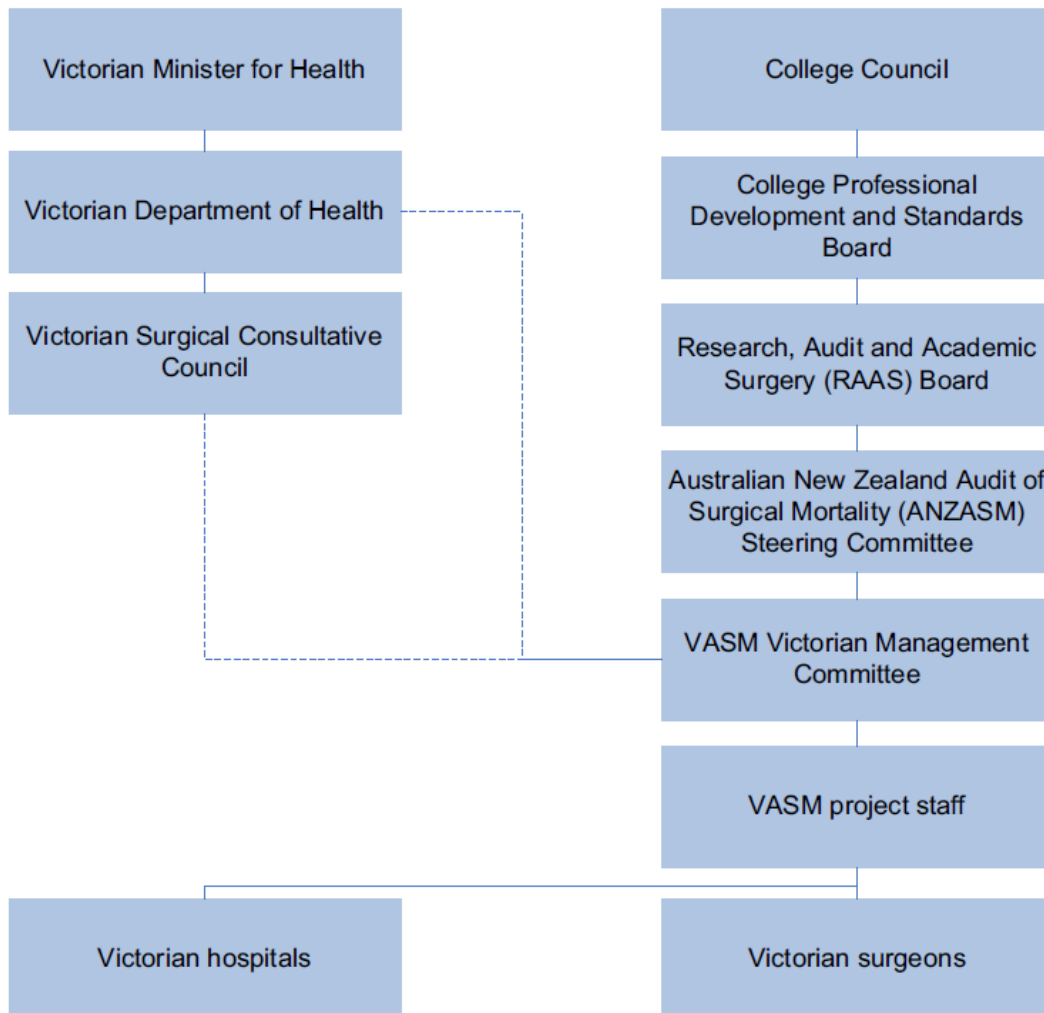
4.5 Issues arising from consultation

This section describes a number of issues relating to governance structures and current administrative arrangements that were identified through the stakeholder interviews.

4.5.1 QUESTIONS ABOUT "WHO IS THE PRIMARY CLIENT OF VASM"?

Some uncertainty was reported about who is the 'primary client' of VASM. It was broadly acknowledged that College administration of VASM assists in gaining credibility, surgeon trust, involvement and ownership of the process. However, issues relating to permissions for use and release of public information arising from the audit were raised. In particular, government representatives were concerned that insufficient attention had been paid on

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10   Source: Reproduced from VASM Annual Report 2008

occasions to the public release of some information arising from VASM without endorsement of government, who considered themselves to:

- Be the primary contracting agency for of all VASM activities;

- Be responsible for a range of other funded programs related to the work of the audit;

- Work directly with the VSCC, and other Ministerial Advisory Bodies focusing upon safety and quality issues relating to peri-operative care;

- Hold a broader contextual understanding of the range of issues and initiatives currently underway to improve the quality and safety of public health services across the state; and, ultimately;

- Have final accountability for all public hospital performance and patient safety in Victoria.

Accordingly, a tightening of governance arrangements and guidelines (incorporating appropriate approval processes) for reporting any information in the public domain was sought by government representatives, particularly between VASM, ANZASM, the Department of Health and the Minister for Health. In this way, any public release of information can be better co-ordinated and understood within the work undertaken by a variety of other bodies (e.g., the VSCC including the Surgical Outcomes Information Initiative, the Victorian Consultative Council on Anaesthetic Morbidity and Mortality, the Victorian Consultative Council on Obstetric and Paediatric Morbidity and Mortality, the Victorian Quality Council, the Victorian Health Services Ministerial Advisory Committee, a wide range of Department of Health program areas, a wide range of specifically funded health service initiatives etc.).

Similar considerations and concerns have been raised in other jurisdictions. In NSW for example, the primary reporting relationship between their Collaborating Hospitals Audit of Surgical Mortality is seen to relate primarily to the Minister for Health and the Surgeons, but with reporting also to ANZASM (in that order).

4.5.2   PUBLIC CONFIDENCE IN SURGEON SELF-REGULATION

A debate exists in Victoria and other Australian jurisdictions between the need to maximise the confidence of surgeons in order to contribute to the audit process, versus a public perception that any self-regulated process may be subject to inherent bias and/or professional protectionism. Most individuals consulted throughout the project considered that some degree of distance between the 'bureaucracy' and the 'coal face' was required in order to secure the participation of surgeons in the audit process. Moreover, it was appreciated that a level of highly specialised knowledge was required to assess the reports provided by individual surgeons. Notwithstanding, perceptions of potential leniency and reticence to disclose issues of significance were also raised in the context of peer review being the key element of monitoring cases of surgical mortality. The importance of stressing the functional role of VASM (as a peer-based review of the outcomes of patient management) and 'consistency' of audit findings with other existing systems of mortality and adverse events review therefore needs to be a focus.

4.5.3   MAINTAINING THE ENGAGEMENT OF A RANGE OF SURGICAL SPECIALTIES

Management Committee representation from the full range of surgical specialties involved in VASM was seen as critical to the ongoing success of the audit. A number of specific advantages were cited:

▪ Surgical peers from particular specialty areas (craft groups) were able to represent the opinion of their peers in relation to specific 'issues or findings of interest'. These individuals were also able to approach individual members of their specialty area for further discussion about any reluctance to engage in the audit process and/or queries relating to the findings (or disputes associated with the findings) of particular case reviews.

▪ Multi-disciplinary input was considered critical in order to develop and maintain reporting and assessment processes 'of relevance' to all surgical specialty areas and thus promote the 'face validity' of the audit (and subsequent compliance therewith).

▪ Representatives from specialties with a small number of surgical peers (e.g., oral/maxillofacial surgeons), those that typically experience minimal adverse events leading to patient mortality (e.g., ophthalmology), or specialties (e.g., plastic surgeons) operating in association with other specialty areas that may be more likely to experience interventions associated with patient death (e.g., trauma) were able to have valued input into the audit process.

4.5.4   ONGOING CLARIFICATION OF THE ROLE OF THE VSCC AND VASM

The ongoing relationship between VASM and the VSCC was also considered to be critical to any operational impact of information gathered through the audit process. Whilst VASM may identify issues relating to patient management, the delegated authority to act on these issues with individual surgeons remains within the statutory authority of the VSCC. As such the VSCC continues to receive aggregate reports of themes arising from case assessments undertaken by VASM and individually review all SLA's that have identified an 'avoidable' death. VASM is not authorised to contact individual surgeons or to recommend alternative approaches to surgical intervention. Thus the role of the VASM was considered to be an evidence base upon which subsequent determinations and interventions could be considered by the VSCC (as per the original operational agreement between the two entities). This was considered to be an important reflection when outcomes arising from the work of VASM were assessed by a range of stakeholders interested in the work of the audit.

4.5.5   INCENTIVES AND DISINCENTIVES OF CPD ACCREDITATION

In an attempt to maximise participation in VASM (and other surgical mortality audits) by the College, provision has been made to recognise participation in the professional Continuing Professional Development program. More specifically, the College has mandated:

> *"A requirement to participate in the Australian and New Zealand Audit of Surgical Mortality if a surgeon is in operative based practice, has a surgical death and an audit of surgical mortality is available in the surgeon's hospital."[11]*

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[11] The Royal Australasian College of Surgeons (2009). Continuing Professional Development Program Information Manual 2010-2012 (p.2).

College representatives have acknowledged that the capacity to incorporate these changes will take time to transition from the current arrangements that are in place for surgical fellows. A number of individuals involved in the consultation process queried whether the number of points currently allocated to VASM activities will be sufficient to maximise participation in the audit process. Whilst it was acknowledged that CPD allocations do encourage participation as an assessor, it was argued that greater participation might be achieved with a higher allocation of CPD points for individual surgeons involved in audit activities and acting as assessors. There have been discussions within ANZASM to increase the number of points and this will take effect at the start of the new CPD triennium.

The relationship between CPD allocation and requirements for 'mandatory' participation in VASM (or other surgical audits) remained unclear to a number of stakeholders. For some specialty groups as an example, it was argued that any future 'mandate' to participate in VASM might be effectively avoided by claiming CPD points via involvement in sub-specialty association activities that currently contribute to ongoing College accreditation. Thus, if the intention is for mandatory participation, methods of avoiding compliance with this requirement need to be addressed by reviewing current arrangements of CPD allocations for sub-specialty groups.

Participation in ANZASM was deemed a mandatory Continuing Professional Development (CPD) activity (Category 1 – Surgical Audit and Peer Review) in January 2010. The ethos for this was to ensure complete participation by Fellows in this activity in all States and Territories in Australia, as well as in New Zealand when the audit becomes available. Mandated participation would also form part of the Fellows' ongoing medical registration.

4.5.6   REVIEWING VICTORIAN ADVICE ON PATIENT DE-IDENTIFICATION

Without exception, the most frequently cited issue in relation to the operational impact of VASM was the time taken to de-identify patient record numbers in order to:

- Recall knowledge of where patients were actually treated by surgeons (who frequently operate across more than one facility); and then

- Locate their medical records in the relevant health service facility in order to complete case report forms.

This issue was perceived to be the greatest burden upon audit compliance within designated timelines for surgical fellows. Associated issues were also reported involving the determination of the clinical unit responsible for completing the case record form; especially where particular surgical specialties were not responsible for the pre and/or post-operative care of the patient.

It is widely understood that this requirement for de-identification in the advice to surgeons (unique to Victoria) was implemented upon the legal advice of the Victorian Department of Health. No specific legal advice was able to be located throughout the review. Instead, Departmental policy advice relating to protection of privacy and confidentiality in management of patient information (via minimising the 'identifiability' of patient records) was identified. Accordingly, it would appear prudent that appropriate legal advice be sought in the context of the relevant Commonwealth and State legislation.

5 Performance overview

Following a comprehensive analysis of all documents and data processed by VASM over the past four years[12,] key activities undertaken by Audit staff were classified into three groups:

- **Inputs** requiring the attention of VASM staff or Management Committee Members;

- **Processes** developed to support the implementation and ongoing operation of the audit; and

- **Outputs** produced in accordance with the audit's Terms of Reference.

A summary of key activities undertaken by VASM, within each of the first four years of operation are summarised in Figure 13.

Figure 13: Proportion of key activities undertaken by VASM (n = 5949)

■ Inputs provided to VASM ■ Processes undertaken by VASM ■ Outputs generated from VASM
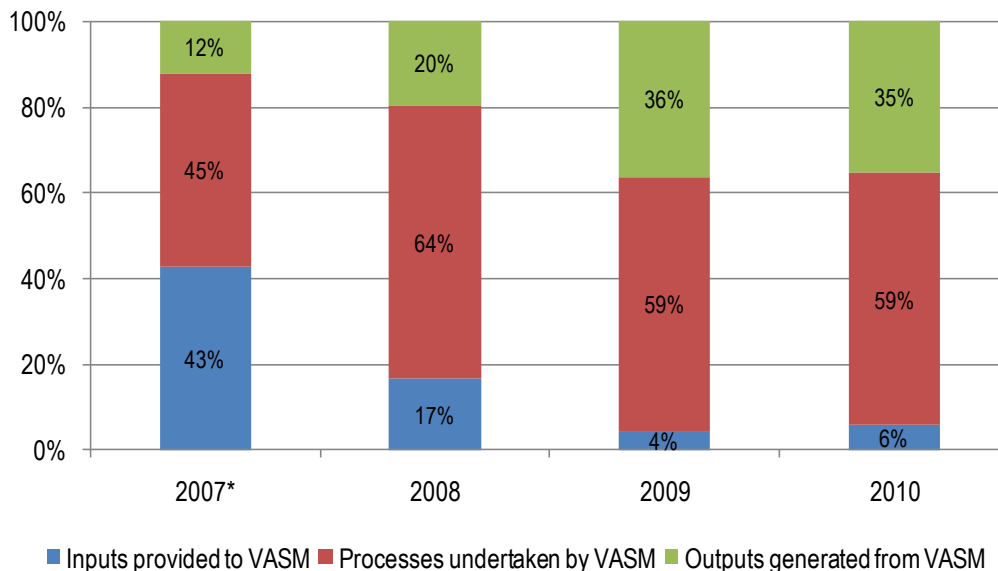
Analysis of activity patterns revealed that the audit has matured and is now operating on a consistent basis. As is expected with any 'start-up' program, the balance of inputs has reduced overtime, the proportion of time spent processing information has stabilized, and the level of outputs generated by the audit have subsequently increased (and appear to be maintained at around 35% of all activity).

Efficiencies in the overall level of operations have also been observed. In the context of a consistent pattern of staffing (since February 2008), the overall volume of activity undertaken each year has increased (Figure 14).

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[12] It should be noted that the following analyses are based upon the volume of activities undertaken rather than the length of time required to undertake each activity. Accordingly, whilst the time taken to undertake 'routine' tasks assigned to VASM may 'average out' over a large number of occurrences, it is acknowledged that other tasks (e.g., annual report preparation, conference presentations etc.) have taken a considerably longer period of time to complete.

Figure 14: Volume of activity undertaken by VASM (n = 5949)
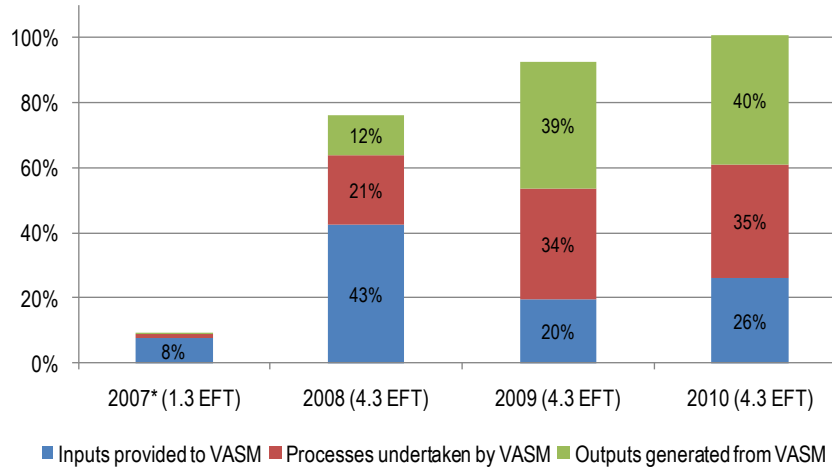
5.1   Inputs provided to VASM

Over the past four years, VASM has managed a great deal of input from a variety of external and internal sources (Figure 15). The majority of inputs have arisen from administrative discussions, feedback and updates relating to issues associated with the development and implementation of operational objectives, external reporting requirements, and methods of case reporting and assessment by surgeons. In addition, data management specifications have been routinely discussed (particularly in the early years of operation) with close attention paid to data security, confidentiality and de-identification of information. Information has also been received from a variety of sources and carefully considered by VASM staff, prior to formulating an appropriate written or verbal response.

Figure 15: Summary of inputs requiring the attention of VASM (n = 489)
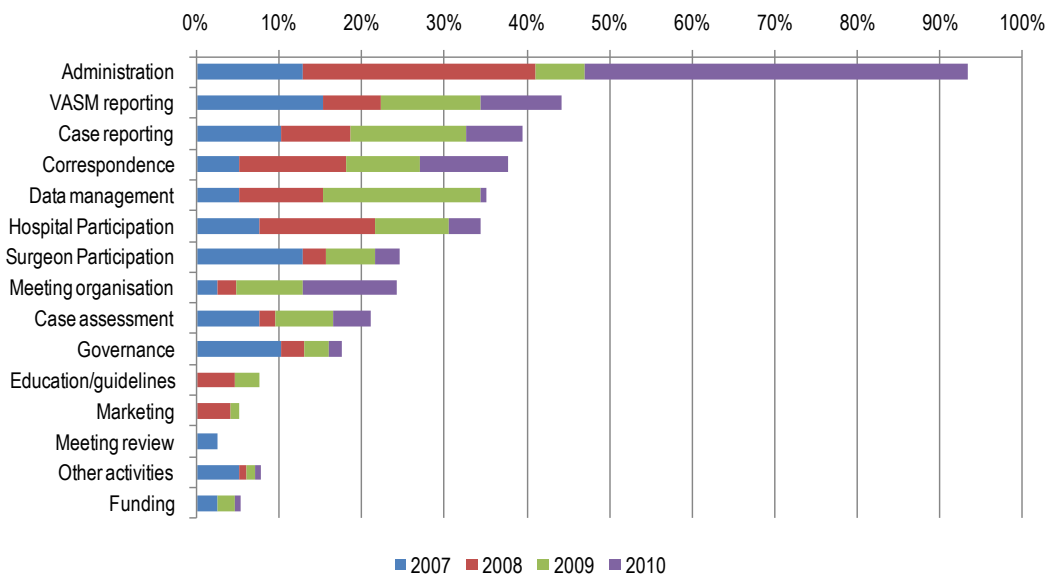
In the early years of establishment, issues were considered across a wide variety of areas including funding and governance arrangements, levels of hospital recruitment and participation, and a range of matters pertaining to internal administration. In 2008 internal administrative processes had largely been established, and were reviewed again in 2010 to streamline operations ahead of the new contractual period. In addition, a greater focus of attention in 2009 was placed upon quality improvements in methods of case reporting and assessment by surgeons, together with analysis of this information (accounting for the reduction in administrative inputs during the 2009 period). As the audit has developed, routine matters of funding and governance have 'settled' and the focus of internal and external feedback has focused upon the routine elements of day-to-day operations.

Selected examples of inputs requiring the attention of VASM

Administration:

Updates on signing of Qualified Privilege Agreement by all College staff

Feedback about development of Standard Operating Procedures manual

Discussions of content for inclusion in Case Note Review publication

VASM reporting:

Discussion about content of individual Hospital Reports

Feedback about content of Annual Reports

Feedback on content of Case Note Review booklet

Case reporting:

Discussion about methods of assessing 'outliers'

Updates on return rates of case reviews for first line assessment

Discussions about format and methods of on-line reporting by surgeons

Correspondence:

Notification of complaints regarding de-identification of patient information

Updates on letters to hospitals & Colleges about VASM

Information about letters to and from Department of Health and VSCC

Data management:

Discussion of data coding and classification

Feedback about data security and information management protocols

Updates on requirements for ethics clearance & access to Coronial data

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5.2 Processes undertaken by VASM

The overwhelming majority of processes developed and implemented on an ongoing basis by VASM staff relate to the receipt, classification and follow-up actions arising from death notifications provided by participating health services (Figure 16). The majority of these notifications have resulted in requests for case reports from treating surgeons, which are then forwarded to identified peers for first (and in some cases second) line assessment.

Figure 16: Summary of processes undertaken by VASM (n = 3563)
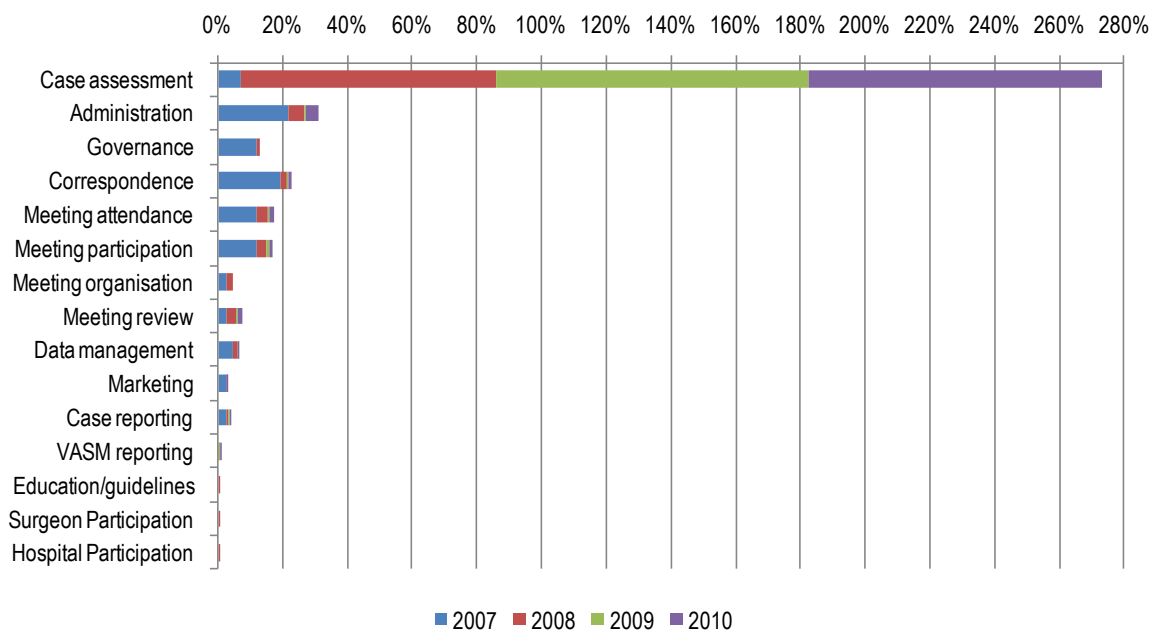
During the first 6-12 months of operations (2007-2008), VASM was concerned with establishing a wide range of processes to support governance, case reporting, data management, administration and correspondence/communication with a range of key stakeholders. To this end, a large number of internal and external meetings were held. Following establishment and embedding of these processes (2007-2008), more than 90% of all activities have related to processing death notifications and follow-up requests for case reviews. VASM staff received and processed more than 3100 Notifications of Death from participating health services, including:

- 2 notifications in 2007;
- 652 notifications in 2008;
- 1275 notifications in 2009; and
- 1235 notifications in 2010.

The rise in the number of death notifications since 2007/2008 has been directly proportional to the number of health services participating in the audit since it commenced in 2007.

> **Selected examples of processes undertaken by VASM staff**
>
> *Case review and assessment:*
>
> *Identification of in-eligible cases from Death Notifications*
>
> *Dispatch and follow-up of case reporting forms sent to surgeons*
>
> *Co-ordination of First and Second Line Assessments*
>
> *Administration:*
>
> *Ongoing additions and updates of Standard Operating Procedures*
>
> *Training & responsibilities of VASM Administration Officer*
>
> *Process for providing de-identified Coroner's report to surgeons*
>
> *VASM reporting:*
>
> *Review and editing arrangements for VASM Annual reports*
>
> *Agreed format for VSCC reports*
>
> *Process for coordinating Case Note Booklet for publication*
>
> *Correspondence:*
>
> *Letter of invitation to private hospital CEOs re participation in VASM*
>
> *Letter to fellows outlining 2nd line assessment issues*
>
> *Letter from Department of Health regarding development of an information sharing and communication strategy for VASM*
>
> *Data management:*
>
> *Processes for de-identifying closed cases*
>
> *Processes for managing missing data in case reporting forms including logic checks at data entry*
>
> *Reviews of error rates in text reporting by surgeons*

5.3   Outputs arising from VASM

VASM has produced a high level of output since commencement of the audit. The predominant outputs generated by staff have related to the finalisation and dissemination of First and Second Line Assessment reports to treating surgeons (Figure 17). Approximately half of all requests for case note review have resulted in the production of a First Line Assessment Report[13.]

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[13]   Based upon 74% return rate (by census dates) from surgeons x 70% completion rate of case report forms (.74 x .70 = .52) Reasons for not completing case reports are outlined in VASM Annual Reports and include: exclusions due to admissions for terminal care, cases inaccurately attributed to a particular treating surgeon, surgeon refusal to participate in the audit, and inability of surgeons to access patient medical records to complete individual case reviews. Current analysis indicates a return rate of 55.8% (1766/3164) from analysis of data over a longer period (to end 2010) than that reported in the VASM 2010 Annual Report (to 30 June 2010).

Accordingly, between 2007 and 2010, VASM has provided more than 1700 First Line Assessment (FLA) or Second Line Assessment (SLA) Reports to surgeons, including:

- 1 FLA report in 2007;

- 221 reports (204 FLA, 17 SLA) in 2008;

- 771 reports (672 FLA, 99 SLA) in 2009; and

- 773 reports (649 FLA, 124 SLA) in 2010.

Early outputs concentrated upon publication of a range of key documents to support the work of the audit including (but not limited to):

- Explanations of the nature and purpose of the audit, together with assurances about qualified privilege arrangements covering surgeon involvement;

- Case Reporting and Case Assessment forms to streamline data collection; and

- Guidelines to facilitate reporting and assessment by surgical fellows.

A large amount of correspondence has also been generated to support hospital recruitment and ongoing surgeon participation in the audit process.

Regular reports to the Management Committee, Department of Health, Victorian Surgical Consultative Council, Australian and New Zealand Audit of Surgical Mortality, Hospitals, and other stakeholders have also been generated, detailing the progress of audit implementation, the findings that have emerged over time, and implications for future surgical practice in Victoria.

Figure 17: Summary of outputs generated from VASM (n = 1897)[14]

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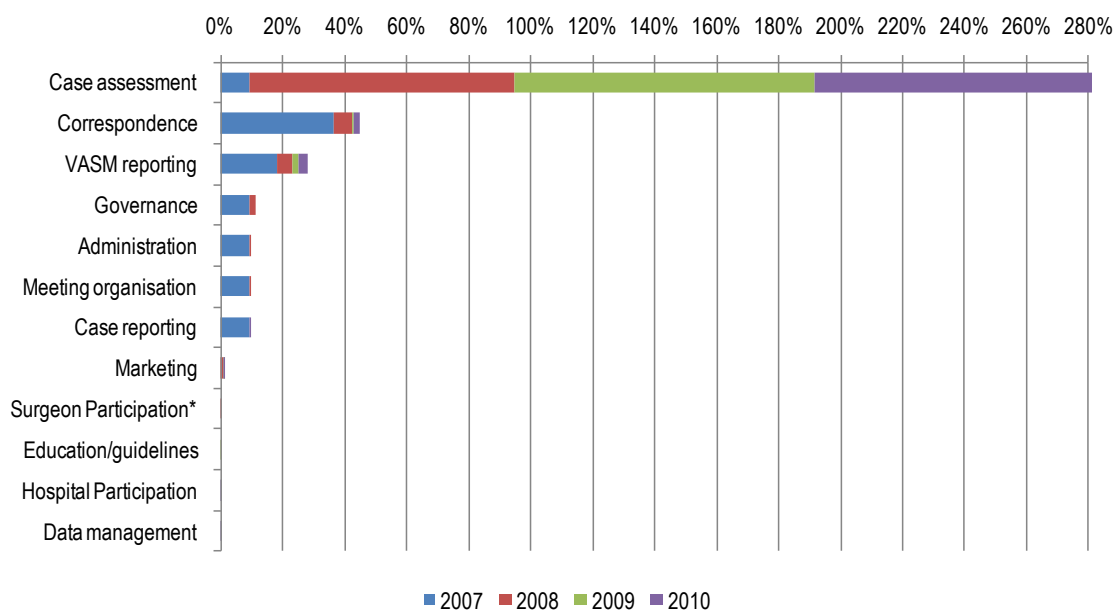
[14] Note: * Surgeon Participation excludes counts of regular correspondence between VASM and participating surgeons.

In addition, VASM staff have also actively sought to promote the purpose and outcomes of the audit via a range of conference presentations, posters, newsletter and peer-reviewed publications.

Selected examples of outputs generated by VASM

Case assessment reports:

Finalisation and dispatch of First Line Assessment Reports to surgeons

Finalisation and dispatch of Second Line Assessment Reports to surgeons

Correspondence:

Request to Royal Australasian College of Medical Administrators to write to health services to improve hospital recruitment

Standard letter format for requesting case notes and relevant patient documentation for review

Media release with summary information from VASM annual report

VASM reporting:

Progress reports to Department of Health includes information on participating hospitals, surgeons, notified deaths, assessors enrolled and date monitoring of error rates

Financial reports to the Department of Health

Publication of Case Report Forms, Case Assessment Forms, Reporting Guidelines, Assessor Guidelines, Annual Reports etc.

Article for Surgical News - discussing primary aim of surgical audits and a series of case study examples

Article for Australian Orthopaedic Association detailing VASM program

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5.4   General feedback from stakeholder consultations

Stakeholder consultations acknowledged that VASM has had a larger budget and responsibility for meeting a greater number of reporting requirements than ASMs in other states. It was broadly accepted that VASM's initial achievements were appropriately focused upon maximising levels of hospital and surgeon "participation", and that this had now been achieved for public hospitals across the state.

In general, the activities undertaken by VASM were viewed favourably. Stakeholders described the audit as a "well-oiled machine" with "good" and "very meticulous" staff. There was a perception that VASM undertook appropriate processes for data collection and storage, and was described by other jurisdictions as the "gold standard" for data security and management.

Most regarded the audit as important – both from the point of view of its role in hospital quality assurance and as a basis for acceptable peer review between surgeons. A number of other positive characteristics of the audit structure and process were also described, including:

- Credibility in the eyes of surgeons, through management by the College;

- Transparent processes for experienced peer review;

- Independence. While it was acknowledged that the College may not be seen in the community as independent, within the surgical community, the processes were perceived to involve independent self-regulation;

- A broad scope of inclusion across multiple hospitals, so that VASM can collate findings and build a critical mass of data on issues that might not be picked up at a single hospital level;

- Rigorous and systematic processes, evidenced by ISO accreditation for VASM in 2010; and

- An approach that will pick up valuable information that can inform quality improvements in patient management and systems change (assuming the surgeon involved passes on information to the hospital, or the VSCC acts upon information from VASM).

When asked about activities that might be further developed by VASM:

- Some individuals perceived that the activities undertaken by staff could be subject to greater scrutiny by members of the Management Committee; and

- Others stakeholders felt that VASM could adopt further computerised practices employed by other audits (e.g., for generation of correspondence).

Notwithstanding, most considered that the audit was now "heading towards maturity", with well-established processes. Feedback about specific elements of the VASM audit process and outcomes are reported in the following sections of this report.

6   Recruitment and participation

6.1   Hospital recruitment

Victorian hospitals are recruited to the VASM by obtaining a written consent to participate from the Chief Executive Officers of each hospital, public and private, in the state. Recruitment is conducted by the VASM Clinical Director and Project Manager, with support from Project Officers.

The process for recruitment is initiated with the CEO or the head of surgery of the hospital via a letter of introduction. A 'Hospital Pack', which includes introductory information such as VASM governance arrangements, all necessary forms and contact information for VASM officers, is then sent to the nominated heads/managerial hospital contact.

The relevant hospital personnel, usually medical records personnel or a nominated safety and quality officer, are asked to contact VASM and schedule an appointment with relevant VASM staff at their health service/hospital. The rate of hospital recruitment to VASM is shown in Figure 18.

Figure 18: Graph of health service recruitment (n = 81)
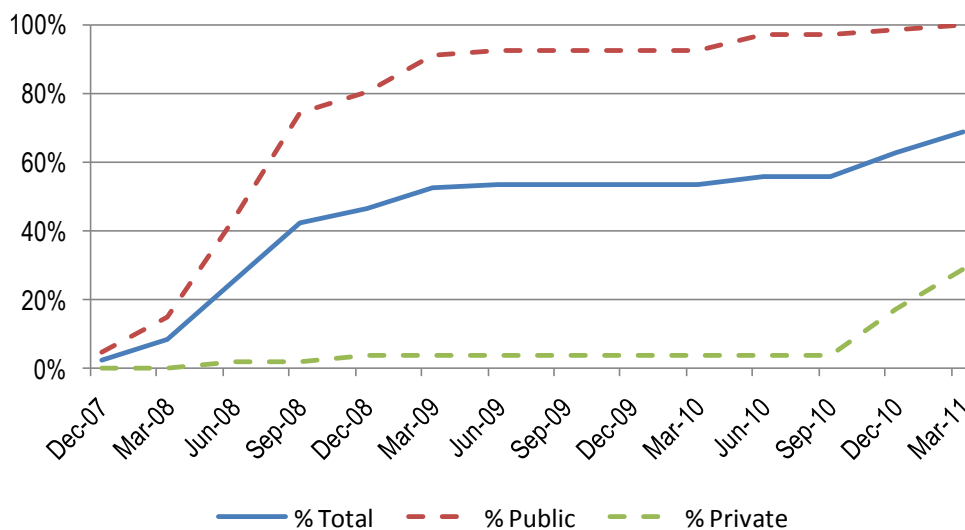
Stakeholders reported that most hospitals were active in notifying VASM of deaths, and were generally supportive of the process. While full participation of public hospitals has been achieved, the recruitment of private hospitals is "a work in progress".

- Stakeholders felt that private hospital participation was particularly important, given:

- Perceptions that surgeons in the private sector were largely unscrutinised; and

- Private surgeons are given "significant leeway" by having the option to respond to selected cases.

This means that issues in the private sector may not be identified, particularly if internal processes are not undertaken to review cases of surgical mortality at the hospital level.

Full participation of both public and private hospitals was felt to be a realistic goal and is understood to have been achieved in other jurisdictions (e.g., Western Australia). It was noted, however, that the internal cost of involvement may be an impediment for private hospitals and that this may need to be addressed if full participation is to be achieved. Other suggestions to facilitate recruitment of private hospitals included gaining support from private health insurance companies (some felt that this would have little impact), or publicising participation details. There was a perception that once some of the bigger private hospital groups become involved, others would be more likely to follow quickly.

However, it was apparent from the stakeholder consultations that, at a hospital level, there are some pockets of significant resistance and antagonism to VASM. These views appear in part to be based on a lack of complete understanding of the role of the audit. In other cases, stakeholders perceived that government funds would be better applied to hospital-based processes rather than system-level monitoring.

There was a high degree of consensus that VASM processes associated with de-identification of patient information were a significant "impost" on hospitals. The inability of VASM to provide patient names to individual surgeons (who frequently operate across multiple hospitals) meant that each case number required separate investigation (across different hospitals) to identify the patient name and whether they were treated at that hospital, and the location of the patient's medical record within the hospital system. Additional impost was reported to result from the need to photocopy and de-identify patient records when requested for second line assessment.

Those with a more positive view generally indicated that VASM supplemented and gave weight to findings from case reviews undertaken at the hospital level. Some hospitals had developed specific strategies to support the case reporting process by:

- Advising the surgeon that VASM has been informed of the patient death; and/or

- Resourcing the provision of records to the surgeon, including copying and de-identification where required.

6.2   Surgeon participation

Although 89% of all Victorian Fellows have agreed to participate in the audit process, estimates based upon actual responses within prescribed timelines (for case reporting following notification of death), indicate that around 67% of all Fellows who have been requested to submit a case report are actively participating within the audit parameters[15]. Analysis of the time taken to return case reports has shown an improvement over the past three years of the audit, with 70% of all case reports having been received within:

- 72 days in 2008;

- 69 days in 2009; and

- 55 days in 2010.

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[15]   Estimation based upon 26.1% non-participation (73.9% return of case report forms), and 7.4% active refusals from surgeons electing not to participated in the audit (VASM 2010 Annual Report. p. 17), totalling an average 33.5% rate of non-participation (thus a 66.5% participation rate).

Discussion on the issue of surgeon participation in VASM varied widely in the consultations, with a significant majority being supportive (while recognising that VASM is a "work in progress") and a small number being sceptical or critical. It was the view of some stakeholders that full participation in VASM by surgeons will require generational change. Specifically, younger surgeons who have been "brought up with it" will be less concerned about, for example, feedback to hospitals.

All stakeholders were aware that participation by surgeons in VASM is voluntary. It was also acknowledged that participation as both a respondent and as an assessor is recognised in the College's CPD program. Despite this, it was observed by stakeholders that a proportion of surgeons had declined to participate, and the reasons for their decisions were not readily apparent.

Given differences between public and private hospital participation, it was also considered likely that those surgeons who work exclusively in the private sector may be less likely to be involved. This was considered to be an important area to address given the high proportion of surgical procedures performed in private hospitals.

6.3   Key issues impacting upon involvement

Perceptions about VASM and the willingness of surgeons to participate was a key discussion point in the consultations and a matter addressed in the questionnaire, where respondents were asked "In your opinion, what are likely to be the reasons why a surgeon may not wish to participate in VASM?" A summary of the survey findings is presented in Figure 19).

The most common reasons provided by surgeons for why a colleague may not wish to participate in VASM related to concern about the time involved in locating medical records and legal implications of involvement in the audit, closely followed by and the time taken to submit case reports to VASM. Surgeons in particular believed that the time taken to locate medical records[16] and lack of organisational support[17] would discourage participation.

Non-surgical respondents to the survey perceived that surgeons might be not wish to be involved in VASM for legal and reputational reasons (Figure 20).

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[16]   r = .17, p =.013
[17]   r = .19, p =.005

Figure 19: Surgeons perceptions about not participating in VASM (n = 156)

In your opinion, what are likely to be the reasons why a surgeon may not wish to participate in VASM?

Reason	Percentage
Time taken to locate medical records	56%
Time taken to submit case reports	48%
Concern about legal implications	47%
Time taken to perform case assessments	46%
Lack of organisational support to participate	44%
Concern about personal or professional reputation	44%
Concern about confidentiality	39%
Concern about the methods of case assessment	26%
Other reasons	10%

Percentage of survey respondents

Figure 20: Non-surgeons perceptions about not participating in VASM (n = 47)

In your opinion, what are likely to be the reasons why a surgeon may not wish to participate in VASM?

Reason	Percentage
Concern about legal implications	68%
Concern about personal or professional reputation	60%
Time taken to submit case reports	53%
Time taken to perform case assessments	51%
Concern about confidentiality	40%
Time taken to locate medical records	34%
Lack of organisational support to participate	23%
Concern about the methods of case assessment	21%
Other reasons	6%

Percentage of survey respondents

There was a belief expressed by some during consultations that VASM had already been successful in improving the level of uptake across surgeons and hospitals, particularly over the last 18 months. However, there was also the contrasting view that compliance was hard to achieve and that the scepticism of surgeons regarding involvement would take decades to overcome.

There was also a range of issues identified by stakeholders as either promoting involvement in VASM, or creating barriers to involvement. From those who were supportive of VASM, reasons to be involved included the access to appropriate peer feedback it afforded surgeons. Interestingly, the fact that participation provides CPD points was not mentioned. At a hospital level, some stakeholders felt that VASM data could be used by hospitals to benchmark their performance against others.

Barriers to participation that were identified by stakeholders were consistent with those reported through the survey, in addition to a number of other factors, including:

- The infrequency of post-operative deaths in particular areas of surgical practice;

- Logistic difficulties in completing case report forms in paper copy;

- Apathy on the part of non-participating surgeons;

- Ongoing difficulties understanding the purpose of the audit and its relationship to other surgical audits;

- Suspicions about the use of information arising from the audit process, including the feeling that, as surgeons, they are being subjected to a "witch hunt";

- That the process will lead to censure and exposure, and that surgeons working in the private sector would be particularly sensitive to scrutiny;

- That information could be used against the surgeon in a legal situation;

- Concern that, while records are "protected", this could not be absolutely assured. Accordingly, it was suggested that the individual had no belief or confidence in the idea that records were in fact protected;

- The view held by some that the VASM process is a purely "statistical" one, with little actual case review;

- The uncertainty regarding how VASM data is used;

- The added burden reporting creates for surgeons. Some stakeholders contrasted VASM with other registries (e.g. Renal ANZData) where reports are submitted by hospital management staff, thus relieving clinicians of the burden;

- The perception that there is poor feedback provided by VASM;

- The level of de-identification in Victoria relative to other states was described as "dichotomous and absurd" and was seen as a dichotomy between "trust us (VASM) with your information" on the one hand, but "we don't trust the system to enable the patient name to be used"; and

- Questioning about whether valid conclusions be drawn from data derived from a process with a high level of subjectivity.

The issues raised were not necessarily given as reasons not to participate as much as they were cited as points of frustration with the process. However, there is no doubt that the process is seen by some to be flawed. It was also suggested that acceptance of the VASM will progress over time, but, as previously discussed, will require generational change to become fully embedded.

7 Data collection and analysis

7.1 Hospital notification

Notifications of Death (NOD) are provided to VASM in a written form. All participating hospitals/health services, treating surgeons and the Coroner's office, report to VASM. Reminders for NOD are sent to each hospital once each month. The reminder requests NOD data for the previous month. The reminder also outlines any other months of outstanding NOD data. Approximately 1 week after the NOD due date, hospitals with overdue NODs are telephoned.

The level of awareness about death notifications from hospitals in which survey respondents are employed is presented in Figure 21. Findings from the survey indicated that the majority of surgeons were aware that hospitals are reporting NOD to VASM.

Figure 21: Surgeon awareness of death notifications to VASM (n = 157)

Do any of the organisations where you work report death notifications to VASM?
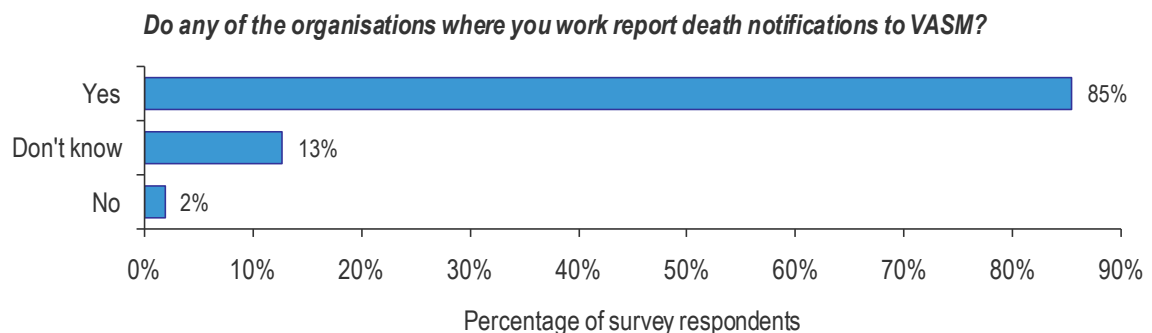
A number of stakeholders pointed to the limitations of the death notification process. In particular, it was noted that some surgery-related deaths can occur after discharge (e.g. patients can die at home days later of Venous Thromboembolism). These cases are unlikely to be reported due to lack of awareness of the VASM process or because the link between the death and the surgery is not made. Thus, concern was raised about the capacity of VASM to capture an appropriate 'denominator' representing all deaths associated to surgical intervention.

Some queried the need to report all deaths to VASM, particularly where patients may have multiple and complex co-morbidities making surgery a 'high risk' option, or where a patient is otherwise expected to die and surgery may have been performed as a 'last chance' option. Others challenged the idea that "expected" deaths do not require reporting, as there still may be issues concerning patient care that require evaluation.

7.2 Case reporting

Case reporting, through completion of a *Case Record Form* (CRF), follows on from the Notification of Death. VASM sends a CRF to the treating surgeon, who completes the form specifying the cause of death and then returns it to VASM. Once VASM staff have checked the CRF for completeness, the information from the case report is entered into the Surgical Mortality Database. Surgeon involvement in case reporting is presented in Figure 22.

Figure 22: Surgeon involvement in the case reporting process (n = 157)

Have you ever been asked to submit a case report to VASM?
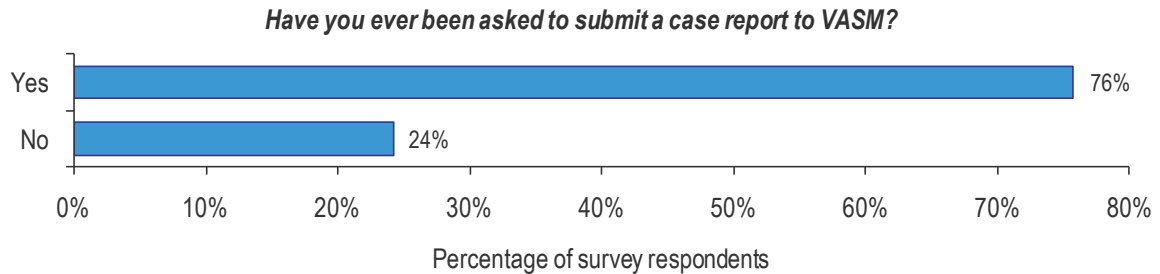
The majority (76%) of all surgeons responding to the survey had submitted a case report to VASM. Surgeons were asked to evaluate a range of key elements of the case reporting process. Levels of overall agreement with the adequacy of the case reporting process are presented in Figure 23.

Figure 23: Surgeon appraisal of the case reporting process (n = 116)

Based on your previous experience with case reporting to VASM, please rate the extent to which you agree with each of the following statements:
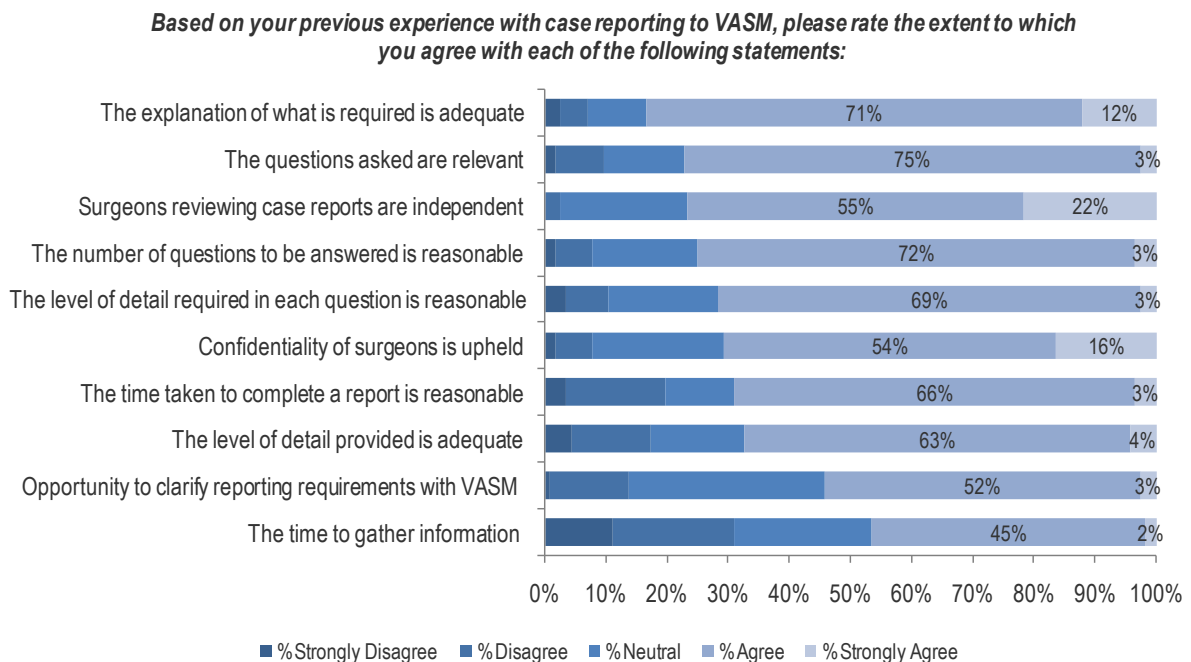
In general, surgeons who responded to the survey indicated a positive experience with VASM; noting that explanation of what is required by reporting surgeons, the number and type of questions, level of detail required, and time to actually complete case reports (once case records were obtained) was adequate and reasonable. Opportunities to clarify issues with VASM staff were also rated favourably.

Some stakeholders discussed the problems that arose in the case reporting process. For example, deciding how to allocate reporting responsibility was considered to be difficult where the patient concerned had multiple operations during the same admission. This was compounded by the fact that some surgical specialties still perceived a VASM request for case report as a "black mark." There was a suggestion that all surgeons involved should complete a report.

The most unfavourable aspect of case reporting involved the time taken to obtain medical records prior to completion of the case report forms:

"At present, get a UR number only from VASM, I have to find out from the hospital who the patient is, request hospital notes, dig out my notes and history and go through both before even starting to report - and all this is completely un-funded. Simplify the process and paperwork required and get administrative assistance to do reports. Without it you will find a low response rate - I have a number just waiting for me to get time to do them."

"Too many audits, surgeons are busy and find that compliance with various audits and other paperwork is becoming very onerous. The precision of the audit is limited by the non identified files. Requests are made for information based on a UR & hospital but in the public arena this seems to come to the head of the unit who then has to search out the record and set the facts straight. All time consuming and frustrating and designed to put people off side."

Others agreed about the workload involved in "doing detective work" to identify the patient before sourcing the patient medical record. It was generally reported that the processes involved can be onerous for the surgeons and for the medical records or quality department who are required to locate, de-identify and copy records. Copying was described as "an impost" and "distracting" – particularly for long admissions. It was perceived that the development of electronic medical records in some hospitals makes it more difficult to bring together a patient record for VASM purposes. Accordingly, the question was raised as to whether there is a lower compliance rate in hospitals with electronic records or whether this represents a barrier.

Several stakeholders pointed out that some reports are completed by staff other than the surgeon involved. At one hospital it was reported that that completion of documentation by the Registrars "is pretty much standard." Some felt that, while completion by Registrars is very common, they may not pay the same attention or apply the same skills to reporting as a consultant surgeon. It was therefore suggested that reporting should not be delegated to Registrars. However, it was also suggested that completion of a report by a Registrar (as opposed to a surgeon) did not make a difference to the outcome.

The involvement of other, dedicated hospital staff to provide support and assistance was recommended by some. This was reported in other jurisdictions as helpful in the case reporting process. For example, WAASM reported that there is a "designated" contact person in each hospital. In NSW the appointment of Clinical Case Managers is said to have assisted significantly, particularly in achieving more timely reporting.

Timeliness of case reporting was identified as another important issue. Stakeholders believed that it was important that the VASM process is initiated and carried out in a timely manner while the case is fresh in the surgeon's memory, and relevant staff members are still in their same roles and available to consult. Delays were due to factors such as non-availability of hospital patient records, or the accumulation of a backlog of VASM report with surgeons. Some felt that it would be helpful for VASM to develop a timeline guide. An online submission process was also suggested to improve timeliness.

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7.3 First line assessment

All case reports by surgeons (except those that involved terminal care) automatically go to First-Line Assessment (FLA). The FLA form is sent to a surgeon of the same specialty in a different hospital so that he/she can conduct a peer review of the case.

First line assessors are required to review the CRF submitted by the treating surgeon and then complete a standardised FLA assessment form. The assessment is to provide a clear view of the assessor's perception of all the phases of the management leading up to the outcome and should reflect current approaches to patient management. Around three quarters all surgeons who responded to the survey had participated in a first line assessment for VASM (Figure 24).

Figure 24: Surgeon participation in first line assessment (n = 154)[18]

Have you ever performed a first line assessment for VASM?

Yes	70%
No	31%

Percentage of survey respondents
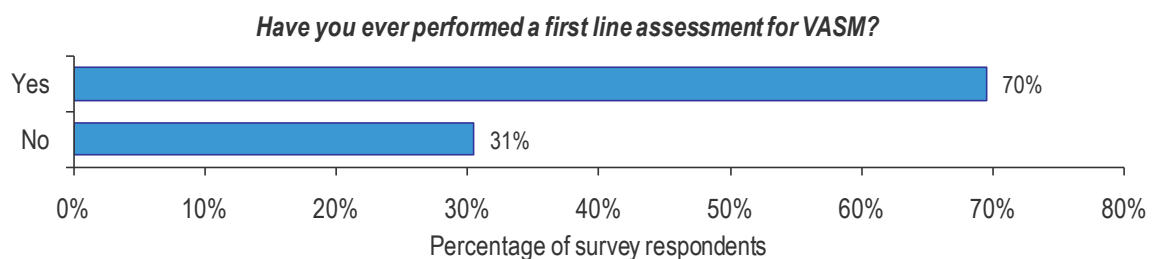
Surgeons were then asked to evaluate a range of key elements of the first line assessment process (Figure 25).

Figure 25: Surgeon appraisal of the first line assessment process (n = 107)

Based on your previous experience as a first line assessor for VASM, please rate the extent to which you agree with each of the following statements:

The number of items on the form	75% / 15%
The explanation of what is required	71% / 17%
The level of detail to be reported	74% / 7%
The time taken to complete an assessment	67% / 11%
The level of detail provided	43% / 5%

■ %Strongly Disagree ■ %Disagree ■ %Neutral ■ %Agree ■ %Strongly Agree

The majority of First Line Assessors (FLA) perceived that the explanation of the assessment process was appropriate, and that the number and level of detail required in specific questions and time required to complete reports was reasonable. Opinion was divided about the level of detail provided by treating surgeons to enable an effective assessment of

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[18] Note: Total percentage exceeds 100% due to rounding.

individual cases. However, surgeons were significantly more likely to perceive that this level of detail was sufficient.[19]

Some individuals queried the process of selecting first line assessors by VASM. More specifically, the transparency of selection was unknown and it was questioned whether a small number of surgeons are selected to undertake first line reviews in particular specialty areas[20]. In a related issue, others queried the level of training involved in the first line assessment process. Apart from guidelines, additional formal training of surgeons as assessors was not undertaken. There was speculation that this may have an impact upon the consistency and quality of first line reporting processes.

7.4   Second line assessment

A small number of VASM cases will require Second Line Assessment (SLA) following on from the completion of a first-line assessment. Where a SLA has been recommended, VASM staff obtain the case notes from the relevant hospital or surgeon, ensure that the case notes are de-identified and deliver all relevant materials to the Second Line Assessor.

The SLA involves a review of the original CRF, the comments from the FLA together with the patient's case notes. In providing a SLA, assessors are required to both complete the standard SLA form and provide a brief typed case report outlining the management issues they perceive to be most relevant to the patient's outcome. The SLA report is intended to indicate whether the care provided is in line with contemporary practice. The proportion of surgeons responding to the survey who had requested a second line (or subsequent) assessment is presented in **Error! Reference source not found.** and confirms the small roportion of these assessments (5%).

Figure 26: Surgeon requests for a second line assessment (n = 115)[21]

Have you ever requested a re-assessment of any case that you have submitted to VASM?
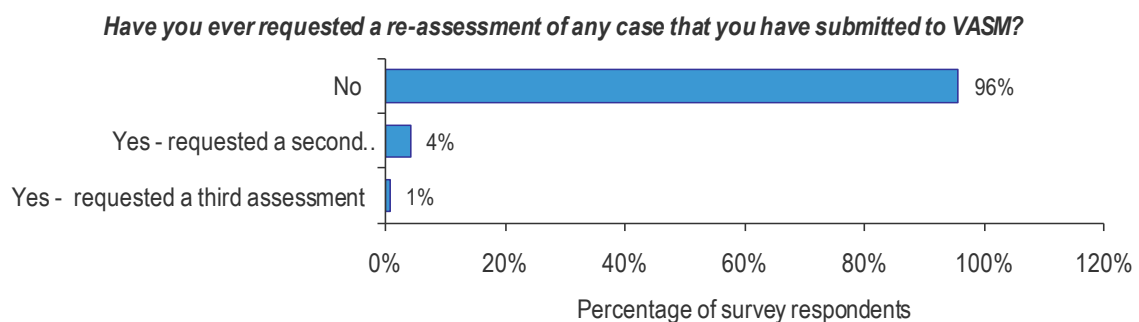
Surgeons were also asked if they had performed a second line assessment for VASM (Figure 27). Around half of all surgeons responding to the survey had participated in a second line assessment.

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[19]   r = .49; p < .001
[20]   Despite information provided in guidelines by VASM.
[21]   Note: Total percentage exceeds 100% as surgeons who request a second line assessment (4%) may also request a subsequent third line assessment.

Figure 27: Surgeon participation in second line assessment (n = 152)

Have you ever performed a second line assessment for VASM?

No	55%
Yes	45%

Percentage of survey respondents
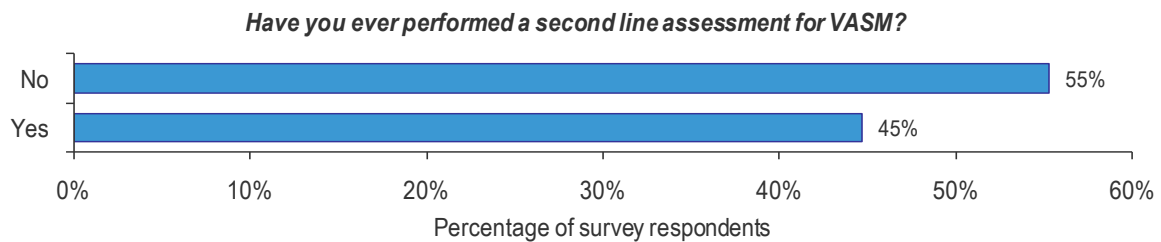
Surgeons involved in second line assessments were then asked to evaluate a range of key elements of the assessment process (Figure 28).

Figure 28: Surgeon appraisal of the second line assessment process (n = 69)

Based on your previous experience as a second line assessor for VASM, please rate the extent to which you agree with each of the following statements:

The number of items on the form	67% / 13%
The explanation of what is required	61% / 19%
The level of detail to be reported	68% / 7%
The time taken to complete an assessment	55% / 9%
The level of detail provided	39% / 6%

■ %Strongly Disagree ■ %Disagree ■ %Neutral ■ %Agree ■ %Strongly Agree

The majority of Second Line Assessors also perceived that the explanation of the assessment process was appropriate, and that the number and level of detail required in specific questions and time required to complete reports was reasonable. Opinion was also divided amongst SLAs about the level of detail provided by treating surgeons to enable an effective re-assessment of individual cases.

Some stakeholders felt that the involvement of Second Line Assessors had improved the quality of reports. Particular improvements in the quality of SLAs were thought to have occurred since the introduction of a $300 payment for each report (providing reporting is conducted within 30 days of receipt of case information from VASM). Others queried how cases were allocated to assessors, and whether those producing poor-quality reports were "de-listed".

Some believed that the hospital documentation provided, or not provided, to Second Line Assessors could be problematic. For example, the de-identification process could obscure whether a particular note in a medical record was made by a surgeon, anaesthetist or other staff member. As a result, this may give a misleading impression as to whether a consultant surgeon had seen the patient in question. As another example, inclusion of the hospital's Root Cause Analysis regarding a death was thought to be a potentially useful source of information for a reviewer. However, it was also reported that statutory immunity of these reports (or other concerns around the confidentiality of the information they contain) may prevent them being provided to VASM for inclusion in the SLA process.

7.5 Other issues arising from consultation

A number of other issues were raised by stakeholders in relation to hospital notifications, case reports and case assessments. These included:

- **Need for simplification to the reporting process**: Because of the administrative burden that case reporting creates, some stakeholders suggested that the process needed to be as simple as possible. Others made suggestions about the reporting proforma. For example, it was suggested that there should be more free-response fields, or specialty-specific questions via separate modules. The introduction of online assessments was seen as a positive development. Ultimately, stakeholders felt that the reporting process should adhere to the principle that a death is only audited once – properly – and not multiple times.

- **Incorporation of case reporting into hospital processes**: Some felt the VASM process should be integrated into a hospital's Quality and Safety system[22], which would reduce duplication. Some health services reported introducing a "death module" on their IT system and with the aim of improved internal reporting and with the capacity to integrate VASM notification.

- **Lack of anaesthetist input**: Although the case report forms enquire about 'anaesthetic components' to the death, there is no direct input from anaesthetists into the VASM reporting process. Some considered this to be appropriate, given that there are separate processes for reporting and evaluation of anaesthetic-related mortality (e.g., via VCCAMM). Others thought that anaesthetic input would represent a valuable and worthwhile inclusion in the VASM reports.

- **General limitations to available information**: It was noted by some that the audit process is limited by the fact that it is based on documentation only. In addition, the review process can occur in the absence of information that may be relevant to an understanding of the case. Some perceive that this means the reviewer does not have "the complete picture" and hence the process is flawed – with incorrect conclusions drawn in some instances. Others expressed concern that information picked up in a hospital mortality review is not conveyed to VASM and suggested that there needs to be communication between VASM and the hospital-based mortality review process. Conversely, others felt that to use information sources beyond the record would be time consuming, expensive, unrealistic and in potential violation of any statutory immunity arrangements that cover internal hospital reviews of patient mortality. Accordingly, these stakeholders believed that the current record-based process is more than adequate and realistic.

- **Specific limitations due to the absence of post mortem findings**: An issue that received considerable attention during stakeholder consultations was the use of post-mortem and/or Coroner reports in VASM reviews. It was stated by some that inclusion of such reports would add substantial delay to VASM submissions, or that Coroner's or post-mortem reports have a different purpose from VASM reports and can result in erroneous conclusions being drawn if included in VASM data. However, others felt that inclusion of post-mortem reports should be included and that any barriers to this process should be removed. In particular, it was felt that such information may be relevant to an understanding of the case. More importantly, where post mortem information was in

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[22] Other related processes include Riskman notification, sentinel event review, root cause analysis, critical incident review and mortality review

contradiction to the findings of audit reports, it was felt that a mechanism should be in place to amend audit findings 'for the record'. Other jurisdictions reported using autopsy and coroner's reports. For example, in NSW it is the responsibility of the Clinical Case Managers to check for and locate autopsy reports, and the Collaborating Hospitals' Audit of Surgical Mortality (CHASM) has access to coronial reports on line and check for them as part of the Audit process.

- **Subjectivity of audit**: Some stakeholders observed that the VASM process is substantially subjective, and that it needs to be established whether the conclusions drawn regarding a case are valid and unbiased. In this context some felt that, greater attention should be given to establishing inter-rater reliability.

7.6 Relationships between Case Report, FLA's and SLA's

In 2010 VASM undertook a summary assessment of inter-rater agreement between two Second Line Assessors reports of the same cases (n=10). Concordant ratings were observed in 58% of the 180 judgements made by independent assessors, indicating non-significant agreement (τ_a = 0.36, p > .05)[23]. Accordingly, the evaluation sought to undertake a more detailed analysis of inter-rater reliability and criterion-related (concordant) validity associated with case report data, and first and second line assessments provided by surgical peers.

7.6.1 AN EXPLANATORY NOTE ON RELIABILITY AND VALIDITY

In the context of perceptual judgements, such as those made by surgical peers through the VASM reporting and assessment process, definitions of 'reliability' and 'validity' require clarification.

- Reliability refers to the degree of measurement 'error' associated with judgements made using the same (or similar) system of rating. Where possible, good rating tools (e.g., questions) try to minimise the potential for misinterpretation by different raters and thus maximise the reliability (consistency) of responses. There are a number of different forms of reliability. Of most relevance to VASM are methods of 'inter-rater' reliability between assessors. It is important to note that for inter-rater reliability to be properly assessed, both raters must have access to the same observations/information upon which to base their perceptual judgement. Acceptable standards of reliability vary according to the type of agreement that is sought. The most frequently cited range of acceptable correlations[24] are 0.0 - .20 (slight agreement), .20 - .40 (fair agreement), .41 - .60 (moderate agreement), .61 - .80 (substantial agreement) .81 - 1.00 (almost perfect agreement).

- Validity refers to the utility (usefulness) of a particular measurement tool in assessing a particular topic or area. There are also a number of different forms of validity. Of most relevance to VASM are methods of (criterion-related) concordant validity between ratings

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[23] From available data presented in Appendix 1 of VASM Second-Line Assessment Validation Audit 2010 Report, using Kendall's co-efficient of concordance (n =10): $\tau_a = \frac{n_c - n_d}{\frac{1}{2} n (n-1)}$; z_{crit} (p ≤.05) = .51.

[24] Landis, J.R., & Koch, G.G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33, 159-174. It should be noted however that these (and other reported) ranges of acceptable reliability were not subject to empirical examination and have been the basis of contention in the literature (see for example: Fleiss, J.L. (1981). *Statistical methods for rates and proportions*, 2nd ed. New York: John Wiley; and, Cicchetti D.V., and Sparrow, S.S. (1981) Developing criteria for establishing the inter-rater reliability of specific items in a given inventory. *American Journal of Mental Deficiency*, 86, 127-137.)

provided by surgeons and ratings provided by assessors, indicating that there is a level of professional agreement about the causes and outcomes associated with individual case reports. This effectively examines the quality of agreement between the two raters. It is important to note that extremely high levels of validity are rarely observed as levels of validity are always constrained (inter alia) by the accuracy/reliability of the measurement tools. Accordingly, acceptable standards of validity vary according the number of questions that are compared. Where single item questions are compared, validity coefficients typically range between .30 and .40. Where multiple items (e.g., scales) are compared, higher validity coefficients may be observed[25].

7.6.2   SELECTING VASM DATA FOR ESTIMATING RELIABILITY

Prior examination of SLA inter-rater reliability was appropriately undertaken on the same set of information available from de-identified case records. Unfortunately, the small sample size used in this exercise limits the precision with which conclusions about inter-rater agreement can be made[26].

Detailed assessments of inter-rater agreement between First Line Assessors or Second Line Assessors have not been undertaken to date. Accordingly, the evaluation sought to identify a sub-group of existing VASM data upon which indicative reliability estimates might be calculated.

A comparison was undertaken between the VSCC Case Classification Questions completed by surgeons via case reports and Second Line Assessors. These ratings were made on a common basis (the medical record information), using the same questions for both groups of raters. It was acknowledged that surgeon reports would also have included additional knowledge/information that may not have been reported in the medical record. Notwithstanding, it was considered reasonable to assume:

- That if key events or information were not documented in the record, they were 'not done' in practice (in accordance with principles of medical record audit);

- This was the best available information upon which to estimate inter-rater reliability;

- Estimates would under-represent the true inter-rater reliability; however,

- The data would provide an indicative 'lower bound' of reliability until more detailed studies can be undertaken by VASM.

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[25]   Nunnally, J.C and Bernstein, I.H. (1994). *Psychometric theory*. 3rd Ed. New York: McGraw-Hill Inc.
[26]   Small sample sizes are generally associated with wide confidence intervals within which the true value of inter-rater agreement may occur. Thus, the estimate of true agreement may actually exist anywhere within this range and our capacity to make conclusions based upon this information is imprecise.

7.6.3 INDICATIVE ESTIMATE OF RELIABILITY

Data were combined for all SLA's reported in the VASM dataset to maximise the number of cases available for comparison between individual items[27]. Indicative inter-rater reliability estimates are provided in Table 4. Detailed cross tabulations of each item, together with tests of statistical significance are presented in Appendix 3. SLAs demonstrated moderate to high levels of agreement with ratings made by surgeons (average = 85%, minimum = 61%, maximum = 98%). Kappa coefficients confirmed moderate to substantial agreement (range: .26 to .67).

Table 4: Indicative inter-rater reliability estimates between surgeons and second line assessors for case report data (n = 35-176)[28]

ITEM	% AGREE	% DISAGREE	KAPPA[29]	95% CI[30]	N
Inadequate preoperative general investigations	92	8	N/A*		51
Inappropriate preoperative preparation	88	12	N/A*		51
Personnel issue	96	4	N/A*		51
Deficient post operative care	92	8	.67 (p<.001)	.37 - .97	51
Protocol breach	98	2	.66 (p<.001)	.04 - 1.0	51
Facility/equipment issue	98	2	.48 (p=.001)	.00 - 1.0	51
Failure of communication	84	16	.47 (p=.001)	.16 - .78	51
Inadequate resources	92	8	.47 (p<.001)	.05 - .89	51
Inadequate preoperative specific condition investigation	86	14	.45 (p=.001)	.11 - .80	51
Lack of timely involvement of experienced staff	73	27	.42 (p=.002)	.17 - .67	35
Inappropriate treatment delay	77	23	.36 (p<.007)	.08 - .64	51
Failure of problem recognition	80	20	.26 (p=.060)	.00 - .60	51
Outcome was potentially preventable	61	39	.26 (p<.001)	.13 - .38	176
Incorrect or untimely diagnosis	78	22	.14 (p =.313)	.00 - .47	51

Unsurprisingly, higher levels of agreement were observed for ratings based upon information that was more likely to be documented in medical progress notes or based upon the professional knowledge of raters (e.g., equipment issues, availability of key personnel,

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[27] Future approaches would benefit from identifying cases in which there were 'satisfactory' ratings of 'medical admission notes', 'medical follow-up notes' and 'procedure notes'. This was considered too stringent for the current analysis as it would have minimised the samples available for individual item comparison.

[28] Sample size varied according to the number of cases available for comparison between surgeons and SLA's.

[29] Note: *The Kappa coefficient is not sensitive to extreme levels of agreement, for example, when almost all ratings fall within the same category (e.g., both raters indicate "yes" or "no"). Technically, the observed concordance is smaller than the mean chance of concordance. In these cases it is more useful to simply report the marginal ratings and to interpret the percentage of agreement directly from the cross-tabulation.

[30] 95 percent confidence intervals (lower bound to upper bound) are calculated for unweighted Kappa coefficients in accordance with the methods advocated by Fleiss, J.L., Cohen, J., and Everitt, B.S. (1969) Large sample standard errors of kappa and weighted kappa. Psychological Bulletin, 72, 323-327. Independent verification of data can be calculated (using cross tabulated data presented in the appendix) via the following on-line statistical calculator: http://faculty.vassar.edu/lowry/kappa.html.

breaches of protocol) than ratings that required higher levels of 'local knowledge' or inferences to be drawn from medical record information (e.g., timeliness of involvement, problem recognition). Where levels of agreement were particularly high, both assessors and surgeons had indicated that there were "no concerns" in relation to the relevant item.

7.6.4   ESTIMATION OF CONCORDANT VALIDITY

Having identified moderate to high levels of inter-rater agreement from available data, the degree of 'fit' between surgeon and assessor perceptions of surgical outcomes was examined. The following criteria were adopted:

- First line assessors' ratings were selected and compared with surgeon ratings if the first line assessor judged the information in case reports to be 'sufficient'.

- Second line assessors' ratings were selected and compared with surgeon ratings if the second line assessor judged the information in medical admission notes, surgical procedure notes and medical follow-up notes to be 'sufficient'.

Comparisons were made between surgeon and assessor ratings of a number of primary outcome variables including:

- The presence of any issues (considerations, concerns or adverse events) associated with patient management.

- The likelihood that any issue may have impacted upon patient death[31].

- The likelihood that any issue was preventable[32]

- Identification of any issue as a potential area for 'consideration'.

- Identification of any issue as a potential area of 'concern'.

- Identification of any issue as a potential 'adverse event'.

A summary of the number of cases selected according to these criteria are presented in Figure 29 and described in the following paragraphs.

In general, a similar proportion of issues were identified by surgeons and first line assessors. Around two thirds of the issues were considered to have an impact upon patient outcomes. Following medical record review, second line assessors identified a higher proportion of issues, and a greater likelihood that these issues may have impacted upon patient outcomes.

Areas for further consideration were more prevalent in surgeon, first and second line assessor reports compared with areas for concern or potential adverse events occurring during patient management.

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[31]   The 'likelihood' of impact upon patient mortality was calculated (for any area of consideration, concern or adverse event) by dichotomising associated ratings of 'made no difference to outcome' into a category of 'unlikely', and ratings of 'may have contributed to death' and 'caused death of a patient who would otherwise be expected to survive' into a combined category of 'likely'.

[32]   The 'likelihood' of preventability was calculated (for any area of consideration, concern or adverse event) by dichotomising associated ratings of 'probably not' and 'definitely not' into a combined category of 'unlikely', and ratings of 'probably' and 'definitely' into a combined category of 'likely'.

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Considerations of preventability differed between the three groups. Surgeons considered that around 40% of all issues were potentially preventable. A higher proportion of first line assessors considered that issues may have been preventable (50%). By contrast, following case note review, almost all issues that were identified by second line assessors were considered <u>not</u> to have been preventable (1%).

Figure 29: Summary of VASM outcomes examined (n = 3162)

Surgeon reports (n=1746)	FLA reports (n=1272)	SLA reports (n=144)
Issues 26% (n=461)	Issues 27% (n=343)	Issues 68% (n=98)
Impact 65%	Impact 65%	Impact 77%
Considerations 73%	Considerations 75%	Considerations 67%
Concerns 19%	Concerns 25%	Concerns 38%
Adverse events 11%	Adverse events 15%	Adverse events 20%
Preventability 43%	Preventability 50%	Preventability 1%
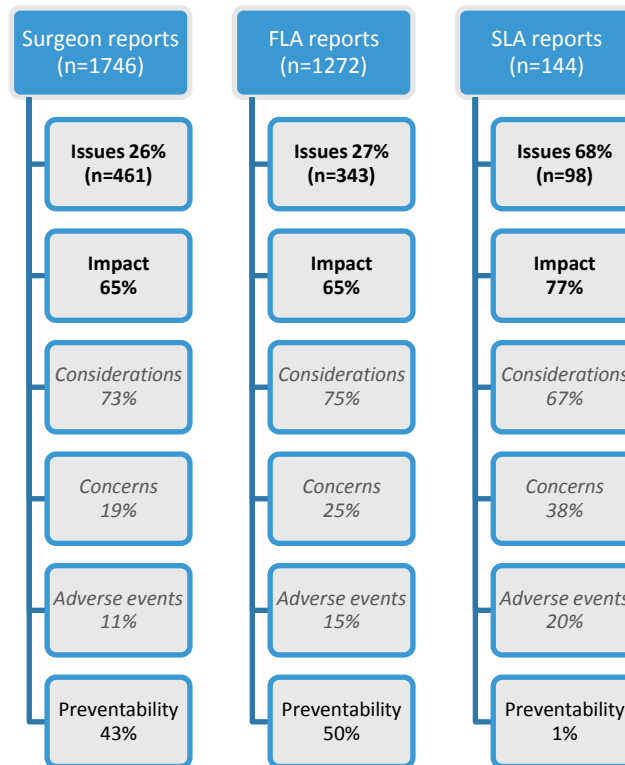
Reports provided by surgeons, first and second line assessors were then compared to identify the level of concordance between the three assessments at a case-specific level. Levels of concordance between surgeon and assessor ratings of outcomes arising from patient management are presented in Table 5.

Table 5: Validity of outcome assessments between surgeons and assessors (n = 45-138)[33]

SURGEON REPORTS	FIRST LINE ASSESSOR				SECOND LINE ASSESSOR			
	% Concord	Kappa[26]	95% CI[27]	N	% Concord	Kappa[26]	95% CI[27]	N
Issues	82	.53 (p<.001)	.48 - .59	1259	54	.13 (p=.089)	.00 - .27	138
Impact upon mortality	81	.55 (p<.001)	.42 - .67	196	73	.19 (p=.165)	.00 - .50	45
Preventability	65	.31 (p<.001)	.18 - .44	188	40	N/A*		45
Considerations	70	.29 (p<.001)	.15 - .43	204	58	.14 (p=.329)	.00 - .43	45
Concerns	75	.37 (p<.001)	.24 - .51	204	58	.15 (p=.279)	.00 - .41	45
Adverse events	88	.49 (p<.001)	.32 - .66	204	78	.39 (p=.003)	.10 - .67	45

The level of concordance between surgeons and first line assessor reports was well within acceptable limits, demonstrating fair to moderate levels of correlation[34].

Comparisons between surgeons and FLAs

Deeper analysis of specific case comparisons revealed that in most cases, First Line Assessors and surgeons agreed that there were no adverse events. Assessors and surgeons agreed that there were issues impacting upon patient management in almost two thirds of all cases. However, agreement relating to whether an issue was an area for 'consideration' or 'concern' differed. Assessors were more likely to identify areas of concern compared with surgeons, and also more likely to think that any issues associated with patient management were potentially preventable (compared with surgeons reports). More specifically[35]:

▪ Whilst first line assessors thought that there was a similar proportion of overall cases (27%) with 'patient management issues' to those identified by surgeons (24%), the proportion of cases where *BOTH FLAs and surgeons agreed there were patient management issues was only 17% of cases* (211 cases out of 1259);

▪ Similarly, whilst first line assessors identified a similar proportion of cases (71%) with 'areas for consideration' to surgeons (69%), *BOTH FLAs and surgeons agreed about areas for consideration in just over half (55%) of the same cases* (112 cases out of 204);

▪ FLAs identified about a third of cases (32%) as having 'areas of concern' compared with about a quarter (24%) identified by surgeons. *There were 17% of cases where FLAs thought there were areas of concern when the surgeons did NOT* (35 of a total sample of 204 cases);

▪ FLAs perceived that an 'adverse event' had occurred in a slightly larger proportion of cases compared with surgeons' (17% of cases identified by assessors vs. 10% identified

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[33] Note sample size varied according to the number of cases available for comparison.
[34] The reader may recall that correlations between single item measures typically range between .30 to .40. See footnote 19.
[35] Note the denominators used to compare different items varied according to the number of responses provided for each comparison.

by surgeons*). *In a large majority of cases (81%), BOTH FLAs and surgeons believed that NO adverse event had occurred*;

- FLAs identified that about 70% of cases had issues that would potentially impact on outcome, a perception similar to that of surgeons (71%). *The proportion of cases where BOTH FLAs and surgeons agreed there were issues impacting on outcome was 61%* (120 cases out of 196); and

- *FLAs thought that issues were likely to be preventable in an additional 28% of cases* relative to those reported by surgeons (111 cases identified by FLAs compared with 87 cases identified by surgeons).

Comparisons between surgeons and SLAs

Unsurprisingly[36], the level of concordance between surgeons and Second Line Assessor reports was lower and largely non-significant. Further examination of the data revealed that Second Line Assessors were more likely than First Line Assessors to identify additional areas for consideration, concern or potential adverse events. These issues were also rated as more likely to have impacted upon patient outcome. However, all issues were considered NOT to be preventable by second line assessors (compared to surgeons reports).

More specifically, SLAs:

- *Identified 57% more cases containing issues* associated with patient management than were reported by the surgeons (96 compared with 61);

- Identified a similar percentage of cases (53% or 24 cases) with areas for consideration compared with those reported by surgeons (60% or 27 cases). However, *SLAs and surgeons BOTH perceived that there were issues in only one third of cases* (36% or 16 cases);

- *Identified 69% more cases with areas of concern* than were reported by the surgeons (22 cases compared with 13 cases);[37]

- *Identified more than twice as many adverse events* (14 compared with 6) as those reported by surgeons; and

- *Believed, compared with surgeons, that more cases involved issues likely to impact on outcome* (87% of cases identified by assessors vs. 73% identified by surgeons). However, in two thirds of cases (67%), BOTH SLAs and surgeons perceived that there were issues likely to impact on outcome; but

- *Thought that no issues were preventable*, whereas surgeons thought 60% of issues were preventable (27 out of 45 cases).

Levels of concordance between surgeon and assessor ratings of specific issues associated with patient management are presented in Table 6.

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[36] Agreement was anticipated to be substantially lower between surgeon and second line reporting, given that cases are sent for second line review where insufficient information has been originally provided, there is a potential discrepancy in ratings between surgeons and subsequent assessors, or disagreement between the surgeon and the firs line assessor (resulting in a request for reassessment).

[37] Put another way, assessors believed 29% of cases had areas of concern, while surgeons believed that 50% of cases had areas of concerns.

Table 6:   Validity of issues identified by surgeons and assessors (n = 105-118)[38]

SURGEON REPORTS	FIRST LINE ASSESSOR				SECOND LINE ASSESSOR			
	% Concord	Kappa[26]	95% CI[27]	N	% Concord	Kappa[26]	95% CI[27]	N
Pre-operative management/preparation	91	.47 (p<.001)	.37 - .56	901	72	.23 (p=.008)	.04 - .42	112
Decision to operate at all	92	.42 (p<.001)	.31 - .52	907	80	.22 (p=.01)	.01 - .44	118
Choice of operation	91	.25 (p<.001)	.09 - .41	904	83	.07 (p=.449)	.00 - .29	115
Timing of operation	94	.52 (p<.001)	.41 - .64	896	73	.13 (p=.136)	.00 - .32	114
Intra-operative/ management of surgery	94	.31 (p<.001)	.17 - .44	885	87	.42 (p<.001)	.18 - .65	114
Grade/experience of surgeon deciding	99	.28 (p<.001)	.00 - .59	882	97	N/A*		105
Grade/experience of surgeon operating	98	.38 (p<.001)	.14 - .62	881	96	.48 (p<.001)	.05 - .91	106
Post-operative care	95	.36 (p<.001)	.22 - .50	856	80	.30 (p<.001)	.09 - .50	112

In general, high levels of concordance were observed between surgeon and assessor ratings of specific issues associated with patient management. This was characterised by high levels of agreement that there were 'no issues' associated with patient management across the majority of cases. Concordance was particularly high between surgeon and First Line Assessor ratings – in excess of 90% across all items examined.

Notwithstanding the strong concordance, there was a consistent trend for First Line Assessors to <u>disagree</u> with surgeons who had reported any issues associated with:

- Pre-operative management/preparation in 45% (38/84) of cases;

- Decision to operate at all in 55% (40/73) of cases;

- Choice of operation in half (8/15) of cases;

- Timing of operation in 42% (24/57) of cases;

- Intra-operative/technical management of surgery in 59% (20/34) of cases;

- Grade/experience of surgeon deciding in a third (1/3) of cases;

- Grade/experience of surgeon operating in a third (3/8) of cases; and

- Post-operative care in 58% (21/36) of cases.

The same trend was identified for Second Line Assessors, who also <u>disagreed</u> with surgeons who reported any issues associated with:

- Pre-operative management/preparation in almost half (8/18) of cases;

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[38]   Note sample sizes vary according to the number of cases available for comparison.

- Decision to operate at all in half (7/13) of cases;

- Choice of operation in more than three quarters (9/11) of cases;

- Timing of operation in around two thirds (9/15) of cases;

- Intra-operative/technical management of surgery in a third (3/10) of cases;

- Grade/experience of surgeon deciding in all (4/4) cases;

- Grade/experience of surgeon operating in a third (1/3) of cases; and

- Post-operative care in a third (1/3) of cases.

7.6.5   SUMMARY OF INTER-RATER AGREEMENT

Based upon the available data collected by VASM, indicative estimates of reliability are encouraging. Assessments of the quality of the agreement between surgeons, first and second line assessors demonstrate that once additional information is available through the medical record, almost all issues originally identified by surgeons are considered unpreventable by assessors. Notwithstanding, the differences in opinion about the presence of areas for consideration and concern remain large. Formally designed studies of inter-rater agreement are therefore required, in addition to more specific studies examining the degree of agreement according to different types of issues associated with patient management (e.g., by nature of adverse event, rather than classification as consideration, concern or patient harm resulting from treatment). In addition, Coronial information may be better utilised as a source of validation when they become available. These issues are further discussed in Section 10, which considers suggestions for future improvements to VASM operations.

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8 Feedback, reporting and communication

8.1 Surgeon feedback

The surgeon(s) responsible for each case are sent a letter at the end of the assessment process that provides details of the outcome. If an SLA was completed, a copy of the report prepared by the Second Line Assessor(s) is also sent. Any subsequent comments made by the surgeon responsible for patient care in response to the assessments are forwarded via the VASM office to the relevant First or Second Line Assessors. The surgeon will always remain unaware of the identity of the assessors.

In addition, surgeons will be sent an annual aggregate report outlining the volume of their cases and assessments compared to their surgical peers. Surgeons are sent individual aggregate reports by 20 December each year. The surgeon aggregate report facilitates reporting participation for the Continuing Professional Development (CPD) program. The perceptions of surgeons who had received feedback from VASM are presented in Figure 30.

Figure 30: Surgeon perceptions of feedback received from VASM (n = 116)

How satisfied are you with the following aspects of feedback provided after case reporting to VASM?
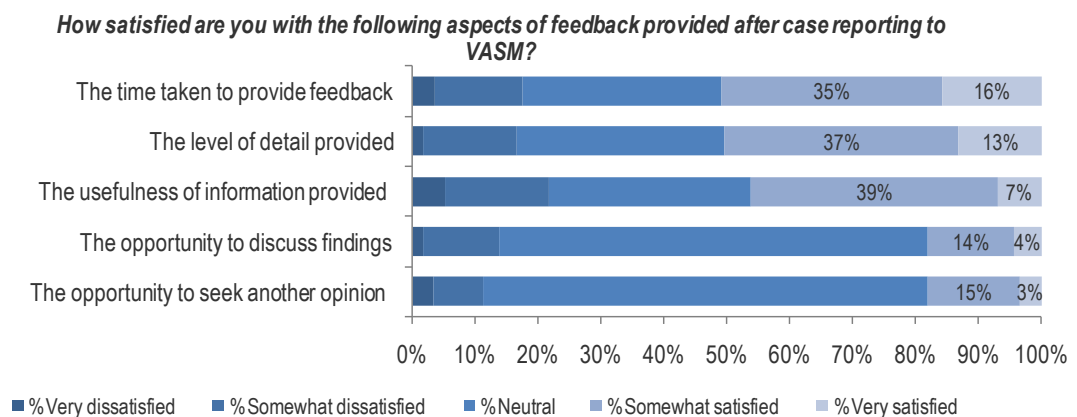
Following case reporting, a significantly greater proportion of surgeons were satisfied with the timeliness, level of detail and usefulness of information provided in feedback from VASM. Most remained 'neutral' about opportunities to discuss findings with VASM or to seek another opinion about individual case reports[39].

Some respondents reported that hospitals were reliant on surgeons for VASM feedback, suggesting that information could be instead passed directly from VASM to the hospital.

"The large hole in the system is that the hospital receives no feedback from VASM unless the surgeon chooses to do so."

"Feedback is useless unless the surgeon again goes back to the hospital record to find out who the ID number refers to. Feedback should also go back to the hospital body as the responsible authority otherwise this process will make no difference in identifying poorly performing surgeons."

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[39]   These ratings may reflect the fact that the majority of surgeons have had no need to undertake these activities.

8.2   Summary reporting and information

VASM provides a range of information to meet the needs of various audiences. However, it is important to recognise that reporting is seen as one part of the communication process. Respondents were asked to rate "How helpful is the information provided in the following VASM publications". Findings are presented separately for surgeons (Figure 31) and non-surgeon respondents (Figure 32) to the survey.

Most respondents indicated that the range of different VASM publications were helpful to some degree. Case studies identifying issues for surgical attention were seen to be the most helpful of all publications. The majority of surgeons did not know or could not recall any information about the VASM web page. However, surgeons were significantly more likely to perceive as "helpful" letters about cases to be reported[40] and about case findings[41], and guidelines on how to assess[42] and report[43] cases. More experienced surgeons were most likely to find newsletters useful.[44]

Feedback received during the consultation process was consistent with these findings, but provided a more in-depth understanding. It was apparent from the feedback that when reporting to surgeons, VASM treads a fine line between providing comprehensive information and "getting the message across". There were frequent reminders that surgeons will not read detailed and extensive documentation. They require "short sharp messages" that inform their practice and that are evidence-based. In other words, the key messages need to be effectively distilled.

Case note reviews

Case note reviews were generally the most highly regarded of VASM's reports. They were seen as more useful to surgeons than detailed statistical analyses. However, it was also noted that the findings are "generally not unexpected – but do provide a mandate for action".

Similarly, in other jurisdictions such as WAASM, case note reviews were reported to be very popular. These are produced in addition to tri-annual reports to the Department of Health.

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[40] $r = .15$, $p = .032$
[41] $r = .23$, $p = .002$
[42] $r = .27$, $p = .000$
[43] $r = .16$, $p = .026$
[44] $r = .20$, $p = .006$

Figure 31: Surgeon perceptions of VASM publications (n = 153)

How helpful is the information provided in the following VASM publications...
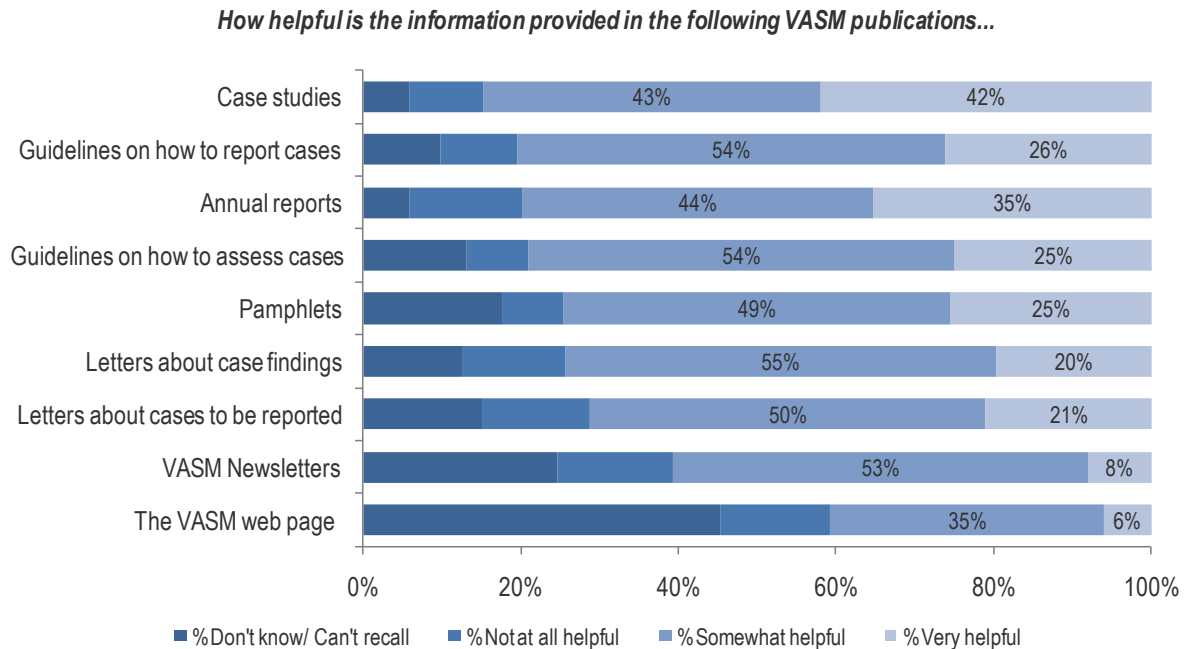
Figure 32: Non-surgeon perceptions of VASM publications (n = 44)

How helpful is the information provided in the following VASM publications...
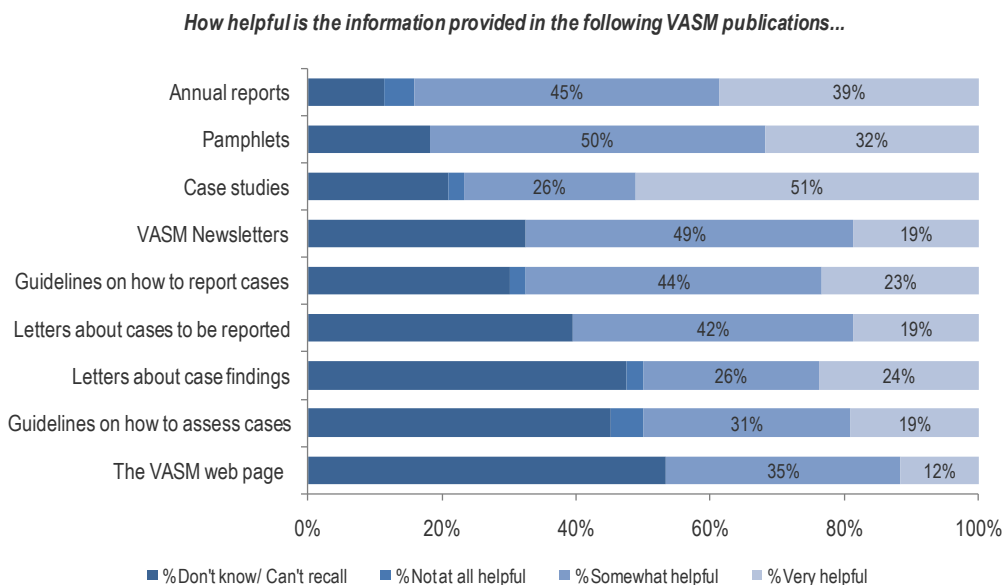
Individual communication

The importance of communicating with surgeons at an individual level to maintain trust and engagement was noted. This was felt to be important where surgeons perceived that they were the subject of a "witch hunt" or some sort of interrogation. This was particularly reported as an issue in some specialties where death is not an expected or common outcome. Certainly, it was apparent that VASM is involved in regular communication with many surgeons (e.g., via regular correspondence and provision of individual annual surgeon

reports) and this is regarded as an important element in promulgating information about the program and its findings. However, stakeholders raised the question as to whether a greater emphasis is required on providing recommendations on care to individual surgeons. Others noted, however, that such feedback should only be directed to the surgeon concerned, as reporting to administration or others would compromise confidentiality. Further, there was a belief that non-surgeons would not be able to "interpret" the results.

Annual Report

The annual report is one of VASM's most visible reporting vehicles, particularly among non-surgeons. It provides a detailed explanation of the organisation, the program and the audit results. Comments made in relation to the report indicate that it is a necessary document from an accountability perspective, but should not be regarded as an effective medium for communicating to surgeons or for stimulating changes in clinical practice.

Some stakeholders emphasised that such reports should be "attention-grabbing" with distillation of key messages that are evidence-based and can inform surgical practice. It was stated that surgeons would not read detailed and extensive documentation.

The report was described as having potentially useful information such as comparison of VAED data and VASM data, "range of performance" information against which a surgeon could compare themselves, and data that provides for national comparison (via ANZASM) However, it was also noted that it did not include all surgical deaths and thus could not be used as a sole source of information regarding mortality rates, for example.

It was also noted that the language and approach of the annual report could be seen as very "technical", "guarded" and "defensive" and that the approach taken could be more "open" and accessible. However, it was also noted that the issue of deaths in surgery is highly sensitive and needs to be communicated extremely carefully. Stakeholders felt that VASM walks a fine line, ensuring that surgeons commit to the process and feel that the process is balanced and effective, ensuring that reporting is not based on an unrealistic view of resources that should be available to the health system, and providing a process that provides appropriate accountability to the public. Accordingly, it was felt the Annual Report's main role was as a vehicle for communicating information about VASM, rather than promoting changes in practice and processes.

Web site

The VASM web page was rarely noted in the consultation process and this is reflected in the survey response. Stakeholders who had attempted to access the web-site noted that it is difficult to navigate to their information on the College web site. However, it is also apparent that communication with surgeons requires a "push" rather than "pull" approach. In other words, it cannot be expected that surgeons will seek out information, but will be receptive when it is received

Distribution

While VASM advised that reports are distributed to staff at many levels in hospitals, it was suggested that there is a low level of penetration and awareness. It was noted that hospitals are complex and layered and the some of the information should have broader distribution to achieve traction. However, VASM reported some frustration with the fact that there is already wide distribution, but recognised that it is difficult to achieve "cut through" and gain the attention of surgeons.

Persistence with current approaches combined with other changes in reporting and communication are likely to result in progressive improvements over time.

Reporting to individual hospitals

Stakeholders reported that provision of reports and results that focus on the data and issues at an individual hospital would be/are well received. In particular, hospitals receiving annual visits (e.g. by VSCC) for the purpose of outlining VASM audit results feel this is valuable. Some hospitals perceive that VASM is important both from the point of view of its role in hospital quality assurance and as a basis for review by individual surgeons.

However, other stakeholders do not believe that there is a great awareness of VASM reports at a hospital level, or that these reports impact to any great extent upon hospital processes. This was reported to be an issue because the individual surgeon is responsible for providing VASM audit feedback to their hospital, which means that information may not be provided to the hospital. However, some stakeholders believed that surgeons were "unlikely to give up the concept that the feedback is solely to the surgeon". In particular, it was reported that the level of trust may be damaged if hospitals (or the Department of Health) were given access to case-based information, especially if privilege and confidentiality were perceived as compromised.

Accordingly, some stakeholders felt that although hospitals nationwide desire summary reports regarding surgical mortality audits, and that broader distribution of information would promote hospital engagement in the VASM process, the information provided to hospitals should not be the same as that provided to surgeons. For example, while management / quality staff might receive a general annual report, the more clinically-based information should be forwarded to the Division of Surgery.

Other jurisdictions described different reporting methods. For example, CHASM provides reporting to hospitals on an annual basis that is specialty specific and Area Health Service Specific – i.e. not for individual hospitals.

Workshops and Seminars

The question was raised therefore as to whether a greater emphasis is required on providing recommendations on care and to individual surgeons as to how they could change care.

In other states there has been some successful events focussed on specific issues arising from VASM. At this stage in VASM's development, the introduction of targeted processes addressing specific issues would be welcomed. These would need to be run in conjunction with VSCC.

WAASM was cited as an example where this approach has been effective. It was indicated that fluid balance management was identified as an issue, but after a series of measures, WA "now has fewer issues with fluid balance". However, it was also pointed out that the lead times for meaningful change are long.

Other reports

VASM provides regular reports to ANZASM, VSCC, hospitals and the Victorian Department of Health. Government representatives reported that the Department of Health did not utilise VASM data to any significant degree because not all surgeons report deaths and thus not all cases are captured. In addition, VASM data were perceived to be limited to information obtained from the medical record only and therefore not based on the most comprehensive range of information possible. Nevertheless, the Department of Health was reported to review VASM reports closely, to ensure it is providing "value for money".[45]

8.3   Impact upon surgical practice

Surgeon and non-surgical respondents to the survey were asked about any changes that had occurred as a result of information received from VASM (whether it be peer feedback or other publications). Findings for surgical (Figure 33) and non-surgical survey respondents (Figure 34) are presented below.

The majority of respondents were unable to identify any specific change that had occurred as a result of information received from VASM. A small proportion of respondents indicated that information received had influenced their approach to clinical care, influenced modifications to surgical guidelines/protocols, or influenced changes to hospital policies and procedures. Metropolitan staff were significantly less likely than rural/regional staff to have instituted or observed changes (especially in hospital policies[46] or participation in training[47]) arising from VASM information.[48]

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[45] Some stakeholders felt that, like other health services, VASM needs to be able to demonstrate that it is an appropriate
       investment and that it is producing a return. However, stakeholders also acknowledged that VASM is only now reaching a
       level of maturity and that over time its capability will improve.
[46] r = -.16, p =.018
[47] r = -.15, p =.027
[48] r = .15, p =.030

Figure 33: Surgeon perceptions of changes resulting from VASM (n = 152)

What changes have occurred as a result of any information received from VASM?
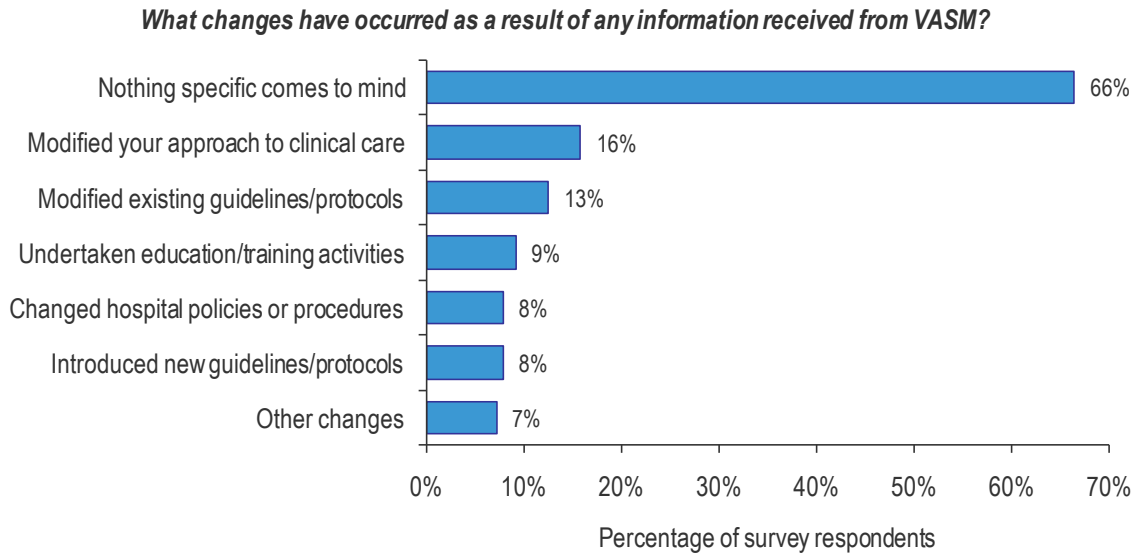
Figure 34: Non-surgeon perceptions of changes resulting from VASM (n = 43)

What changes have occurred as a result of any information received from VASM?
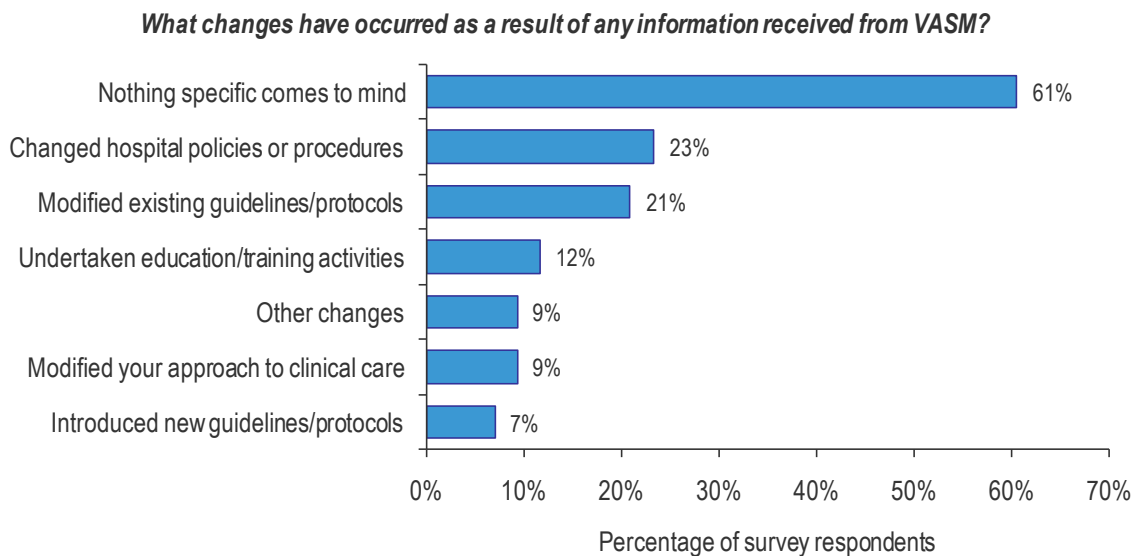
Surgeons, compared with other staff, were significantly less likely to believe hospital policies or procedures had changed as a result of VASM information.[49] However, surgeons with over 20 years experience reported that, based on information from VASM, existing surgical guidelines had been modified[50] or that they had undertaken specific education or training activities.[51]

Other changes related to improvements in general awareness about VASM and the issues identified through individual case review and the audit process.

"Awareness, knowledge of VASM."

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[49]   r = -.17, p =.014
[50]   r = .26, p =.000
[51]   r = -.16, p =.022

"More alert about specific problems/pitfalls."

"It is reasonable to ask surgeons to review cases and therefore justify decisions. This is a useful point to make to trainees as well as remind oneself."

"It is an excellent reminder and reinforcement of the need to be careful."

The overall purpose of VASM is to support improvements in surgical care. It was indicated by stakeholders that, generally, VASM reporting does inform the surgical community and provide insights into the factors impacting on care. However, there were questions about the extent to which VASM is effectively achieving this objective.

It was noted in the consultation process that VASM is one of a number of methods of reviewing surgical practice and that VASM has an indirect impact on clinical practice. Examples were cited in relation to issues such as VTE (Venous Thromboembolism) where VASM processes had prompted or reinforced the need for action (e.g. DVT prophylaxis) at a hospital level.

However, there were few examples cited in the consultation process of changes in surgical practice that have occurred as a *direct* result of VASM. Instead, it was noted that changes in practice arise mostly from review at the hospital level – VASM and VSCC data principally serve to raise awareness. Accordingly, it was suggested by some that VASM reports need to provide a greater emphasis on the improvement of care. It was also suggested that VASM could adopt approaches employed by other jurisdictions, with a specific focus on data analysis and linking data to published research to a greater evidence-based context to their findings.

Others also suggested that reports to individual hospitals that relate specifically to their own cases and systems (compared with the more general Annual Report currently produced by VASM) would be of more benefit in effecting change. However, some stakeholders suggested that the use of VASM data would vary considerably, with some hospitals and specialties not using it at all because of their own processes and registries that guide practice.

Other stakeholders expressed frustration that consistent messages from VASM and other processes were not being addressed or adopted. Handover, supervision of junior staff, and hand-washing were cited as examples where change had been difficult to embed. Other stakeholders felt that changes can occur, but that they take time. In other jurisdictions, some changes being driven by the relevant audits of surgical mortality have taken several years to be fully adopted.

9 Suggestions to enhance the impact of VASM

Half of all survey respondents made suggestions to enhance the ongoing impact of VASM, with less than 1 in 10 reporting that no changes were required. Major themes and the frequency with which they were suggested by survey respondents are presented in Figure 35 and discussed in the following sections.

Figure 35: Suggestions for ongoing developments to VASM (n = 104)

Suggestion	Percentage
GIVE USEFUL INFO/FEEDBACK	24%
SIMPLER/EASIER PROCESS	13%
NO CHANGE REQUIRED	8%
MULTIPLE SUGGESTIONS	7%
NO UNNECESS. REPORTING	6%
MORE SURGEONS INVOLVED	6%
MAKE IT COMPULSORY	6%
EASIER ACCESS TO RECORDS	6%
RAISE AWARENESS OF VASM	5%
GIVE SURGS MORE RESOURCES	5%
SUPPORT/REASSURE SURGEONS	4%
UNGROUPED RESPONSES	4%
CANNOT COMMENT	3%
AUDIT/QUAL. ASSURANCE	3%
FOCUS ON MORBIDITY/SKILLS	2%

The major themes arising from suggestions for further improvements to the VASM process are outlined in the following sections.

9.1.1 MORE DETAILED AND FREQUENT FEEDBACK

Respondents suggested that more detail could be provided to surgeons following first line reports (and to Second Line Assessors), including specific advice about recommendations to improve surgical practice. Stakeholders in the consultation process observed that VASM, having gained more credibility and maturity, is now in a position to provide more targeted feedback. Other stakeholders suggested that a "checklist" approach to promote action plans could be employed, similar to that employed by the Department of Health.

"Improve feedback after first line reports with specific details being reported back to surgeons."

"Be specific in advice i.e. describe case and recommendations."

"Feedback to the second line assessor to inform that the "loop" of the enquiry has been closed."

It was also proposed that more detailed and frequent feedback be given to surgeons in terms of case summaries and themes arising from ongoing case reviews.

"It would be reasonable to look at the deaths in terms of themes. It has been useful to identify that many deaths are attributed to acute illnesses in elderly patients with many

co-morbidities who present late. In time, it should be possible to identify sub-groups e.g. deaths after "colorectal emergencies" cf. other abdominal pathologies, etc."

"Keep the case summaries and reports coming - I believe that the best way to learn is from actual case histories."

"More frequent summaries of relevant and interesting cases. I think regular shorter reminders are more effective than infrequent lengthier reminders."

Furthermore, it was argued that it would be helpful to receive feedback regarding changes that had been made in hospitals or clinical practice as a result of information received from VASM.

"Examples/case studies of where services and practitioners have enacted changes in response to VASM findings."

"Feedback regarding changes that have been made in hospitals around Victoria, based on outcomes of the Audit."

"Need to present evidence that the VASM has detected problems in clinical practice and that these have been addressed. i.e. that all this form filling in has actually achieved something!"

It was also argued that timeliness of feedback was important; for example, when cases were still being considered in the clinical setting.

"Strike while the iron is hot - while cases are under discussion in the treating team's own M&M system."

"Feedback more effective if timely.'

Some respondents suggested that information could be provided in electronic form.

"More clout for the impact of case studies to be reported in a monthly emailed report to all surgeons"

"Perhaps all correspondence is best via e-mail"

"Continue e-information."

"Will demand for e-messages increase and are these effective?"

9.1.2 BROADER DISSEMINATION OF FEEDBACK

Several respondents felt feedback should also be given directly to hospitals and health services, including audit or "M&M" meetings. It was argued that this was the only way in which to effect real change and systems improvements, rather than relying on surgeons to pass on feedback.

> *"The most important function is to disseminate any findings to educate/change practice to improve safety."*

> *"Feedback should be to audit meetings as well as individual surgeons. Not sure how this could be organised but maybe it could be included in the feedback letter?"*

> *"I have been involved in death reviews for 5 years. Cases have been identified for VASM and details and photocopy notes provided but we are unaware of any responses after the reviews. There must be system/hospital related issues and recommendations from such reviews which would be of value to us. There are from our internal death reviews and from our Surgical M&Ms although the latter are hard to extract."*

> *"The large hole in the system is that the hospital receives no feedback from VASM unless the surgeon chooses to do so. There have been no changes to my hospital systems despite a number of reported deaths from here as we receive absolutely no direct feedback. Surgeons in an effort to preserve reputation are unlikely to feedback any "criticism/comments" to the health facility, therefore it is very difficult to see how "systems" errors can be corrected."*

> *"It needs to provide some benefit to the Health services/hospitals to encourage participation. Currently it represents costs but little in terms of benefit."*

Stakeholders in the consultation process observed that currently, only the surgeon is made aware of hospital system issue, with no mechanism to provide feedback to the hospital. Even in other jurisdictions where surgeons are required to report findings and feedback to their hospitals, it was noted that the level of compliance was unknown.

Accordingly, it was suggested that VASM could adopt an approach similar to that being considered by the Consultative Council on Obstetric and Paediatric Mortality and Morbidity (CCOPMM), and provide feedback to individual hospitals regarding possible areas for systems improvement based on case review. It was also suggested that more information could be provided to Directors of Medicine and Directors of Surgery, but only after a higher level of trust in VASM processes has been established.

It was also suggested VASM findings should be incorporated into the education of younger surgeons. It was observed that this would require a process for assembling/packaging findings for use by educators and other training organisations.

9.1.3   SIMPLIFYING THE AUDIT PROCESS

Several respondents commented on the need to simplify the VASM reporting process, and felt the current process created considerable burden.

"The burden of collecting and providing the data is a problem and it would be helpful if this could be minimised."

"Make sure the whole process is very clear and very simple."

The reporting of cases needs to be made much simpler to allow details to be entered directly. The vast majority of cases are expected deaths and these need to be better excluded from time consuming reporting and assessing so the process can concentrate on the 10-15% of worthwhile cases where we might actually learn something and do some good.

In particular, it was argued that tracking down patient histories was very time consuming, and often the responsibility falls to surgeons who are not familiar with the details of the case. Respondents suggested that either the process be streamlined, or more support be provided to carry these tasks.

"Need to provide more information about the identity of cases, too hard to obtain histories way too long after the death."

"Too many audits, surgeons are busy and find that compliance with various audits and other paperwork is becoming very onerous. The precision of the audit is limited by the non identified files. Requests are made for information based on a UR & hospital but in the public arena this seems to come to the head of the unit who then has to search out the record and set the facts straight. All time consuming and frustrating and designed to put people off side."

"The reports of public hospital cases need to be done within the hospital. Sessional surgeons do not have access to medical records or the time to do this. The previous system worked much better when an individual within the hospital did the reporting. Furthermore, the nominated surgeon is often not the actual person who had anything to do with the patient."

"Administrative assistance - at present, get a UR number only from VASM, I have to find out from the hospital who the patient is, request hospital notes, dig out my notes and history and go through both before even starting to report. And all this is completely unfunded. Simplify the process and paperwork required and get administrative assistance to do reports. Without it you will find a low response rate - I have a number just waiting for me to get time to do them."

Identifying strategies to obtain easier access to medical records for the purpose of reporting to VASM was a source of frequent feedback from surgeons and others.

"The main difficulty of VASM is access to the relevant hospital's medical records, due to the de-identification of the patient details, and as the review is of a deceased patient - then files are not always readily accessible."

"The process of retrieving case records based on UR numbers is proving to be onerous & discourages participation..."

"It is very difficult as a VMO to go to medical records and get files, particularly in the absence of public hospital secretarial support or motivation from medical records to be helpful. It would be vastly different if I were in the hospital every day."

"Letters should go to administrative personnel at hospital to pull records and identify treating surgeon rather than straight to surgeon. Half the time I am asked for a report on a patient that was not mine."

Some expressed a preference to report cases and enter information on-line, believing this to be potentially more convenient, but reported difficulties with log-ins and password use.

"Cases to be entered via internet."

"More clinical details - fewer questions - more reliable access to website changes to passwords without being advised wastes time."

"I have been asked to complete a first line assessment. Initially I was not provided a login username or password. Now it does not work. VASM staff awaiting IT support to find where the problem is. I would prefer to do first line assessment online but may have to resort to paper."

"Easier user name and password."

Some respondents also pointed out that in public hospital settings, registrars were often more familiar with details of the cases, and suggested that the process be set up to enable submissions to be completed by the registrar instead of only by the surgical Fellow.

"I have had difficulty with complex cases where several different sub-specialities have been involved during patient's last admission and a lot of the liaison is done by the registrars. This means that one does not have a complete knowledge of the actual day to day path that lead to patient's outcome."

"Encourage participation of surgeons in public hospitals by setting up web interface for SET registrars so that consultants can nominate a registrar to review a case and submit electronically. Currently notifications only sent to consultant surgeons who do not have the time at the public hospital to do the assessments on-line."

9.1.4   ELIMINATION OF UNNECESSARY REPORTING

Respondents suggested eliminating the need to report cases previously known to be at 'high risk' of surgical mortality. For example, some feel that elderly patients dying of "natural causes" do not require auditing.

"Most of the cases I see are elderly folk who have had more than their three score and ten and have had an inevitable outcome from their event"

"I can't really see the sense in reporting the deaths of 90 year old demented patients whose death is a foregone conclusion (e.g. "after discussion with the relatives the decision to palliate was made"). There is little to be gained from making a paper trail out of such a case. ... What I have found encouraging though is that the peer reviews have never gone past the first line assessment and they seem to be written by surgeons who are faced with the same day-to-day dilemmas that confront me."

"Highlight areas of concerns. Reporting on avoidable deaths in 93 year olds is ridiculous."

Others felt it unnecessary to report on certain medical conditions with known high rates of mortality, especially when reporting to the coroner is also required.

"One of the problems in neurosurgery is that many of our deaths are inevitable from the outset - severe intracranial haemorrhages particularly. It is frustrating to spend the time required to go through such a case, as it can be predicted to be a waste of time. Secondly, can something be done to align the processes for the coronial cases, so one can do one report for the 2 bodies?"

"General surgery is the dumping ground for many desperately ill patients coming thru Casualty and we end up having to write endless reports on patients who are usually dying from "natural" causes."

"Deaths are rare in Plastic Surgery- I have had 2 in 3 years of clinical practice. Only 1 was unanticipated and related to ICU care, not patient selection or their surgery."

9.1.5   INCREASE AWARENESS OF THE AUDIT

Respondents believed that there was benefit to be gained from raising awareness of VASM amongst health services, surgical trainees and fellows. Methods to increase awareness included in-services, and written information.

"Clarification of VASMs role in the private sector."

"Having a presence and creating awareness by having an In-service for the Doctors."

"Letters to Surgeons and Hospital Executive to further outline and explain."

"More education to surgeons on the purpose, role and how outcomes of audits are used."

It was also proposed that hospitals would increase their support if made aware that the aim of VASM was to improve clinical practice.

"Try to obtain more support from Hospitals, by highlighting that this is not punitive in nature, but should improve Hospital practice."

9.1.6   INCREASE PARTICIPATION IN THE AUDIT

Respondents suggested that surgeons be encouraged to participate in multiple aspects of the audit process, with education of surgeons being incorporated into their specialist training.

"Continue to encourage all surgeons to be involved."

"Ensure all Surgeons are involved in the process. Include this as part of College education and training."

"Where a second line assessor can't get enough info request the active participation / reply by the surgeon / hospital."

Some argued that surgeons could play a greater role as assessors, and also be involved in regular discussions of the assessment process and clinical decision-making.

"Encourage more surgeons to act as assessors."

"We should have the surgeons in this program meet & discuss the various aspects of clinical assessment at least once a year."

"Derive some algorithms and/or lead some discussion about making a positive decision to NOT operate in acute elderly ASA IV/V patients."

Others believed that staffing of VASM itself could influence surgeon participation.

"Get a Director who has some credibility amongst his surgical colleagues."

9.1.7   MAKE PARTICIPATION COMPULSORY

A number of respondents suggested that participation in VASM should be compulsory.

"Keep going - make it compulsory - provide resume or direction on 'errors'"

"Make it compulsory."

Some argued that reporting to VASM should be mandatory in all settings including private hospitals.

"Make reporting & participation mandatory even in private hospitals."

"Include all hospitals including private hospitals in reporting process."

Others believed that participation in VASM should be an element of Continuous Professional Development (CPD) or Continuing Medical Education (CME) accreditation for surgeons.

"Encourage participation by larger numbers. Make it part of CME accreditation."

"Keeping it a compulsory part of surgical practice for CPD requirements is important. I believe that most of the surgeons who don't participate are the surgeons who would most benefit from doing so!"

9.1.8   PROVIDING MORE RESOURCES

As previously discussed, surgeons find the process of collecting relevant patient information for case reports burdensome. Several respondents suggested that more resources be provided to assist in the process, either in the form of remuneration or administrative support.

"Requires recognition by Hospital administrative bodies and the Government that while Clinical Governance is all well and good for both the benefit of the patients, medical staff and electoral impetus, the impact on busy clinician's time is often overlooked with no remunerative or administrative support. Participation will progressively suffer as a result as the case load increases."

"Give us more resources to complete. The onus is solely on the surgeon to find the records, make the report and send in supporting information - doesn't seem like much except I already work 60-80 hours a week and have no idea what the data is used for."

*"If only all operation notes in Australia could be typed!
We shall never have too many typed documents."*

"Pay surgeons to do it. For the few cases that I have been involved with it can take well over 5 hours of the little free time I have."

9.1.9   PROVIDING MORE SUPPORT AND/OR RE-ASSURANCE TO SURGEONS

Some suggested that surgeons would benefit from re-assurance during the VASM reporting process, particularly in relation to the confidentiality of the audit process, the protection from litigation, and assurances that case notes do not always reflect the full context of clinical decision making.

"Reassurance about the process, confidentiality, and legal ramifications - I think are paramount."

"Try to reduce the apparent feeling for litigation in surgeons who have a death in their unit."

"There are real concerns about the processes involved and the utility and fairness of the reviews. The idea of confidentiality seems attractive, but we also know that this sort of activity tends to attract cranks and ideologues, and most surgeons I know are very chary about letting such people trawl over the cases records. This problem is made worse by the fact that the case report format is necessarily truncated and does not always allow an accurate reflection of the case."

"An anonymous note from the assessor to the 'assessee' giving encouragement and understanding."

9.1.10   MORE QUALITY ASSURANCE ACTIVITIES

Some also identified a need to undertake more quality assurance activities relating to the audit process itself and findings arising from. For example:

"The biggest problem is the absence of any audit of the accuracy and quality of the information tendered from the notes."

"Assessment should be undertaken as to whether the huge cost and effort in running VASM actually results in useful changes. Or are we simply window dressing?"

9.1.11   EXPANDING THE AUDIT FOCUS

A number of respondents believed that VASM would benefit from an expanded audit focus, to include patient morbidity and/or the specific skills of surgeons, for example. Some stakeholders in the consultation process believed that confining the VASM focus to mortality only was too limiting, and that broadening the process may provide better value. Further, there would be benefit in assessing morbidity and advising on related issues e.g. pre-surgical check list, hand washing, VTE prophylaxis.

"The relationship between surgical mortality and morbidity and non-technical skills should be explored."

"Post op death is rare. Our internal hospital review concentrates on near misses, which are far more common and usually more revealing. ..."

However, support for expanding the audit focus was not universal. Some stakeholders perceived an overlap with VSCC activities, while others felt that such expansion was premature and that current processes required "bedding down" first. Finally, some believed that morbidity is difficult to define and that its inclusion in VASM processes would require careful design in relation to the process and the forms used, to ensure it was fully integrated.

9.1.12   NO CHANGES REQUIRED

Many respondents considered that VASM was performing well and that no further changes were required to enhance the impact of the audit upon the surgical fraternity.

"I think it does a good job as it is."

"I believe the organisation is doing a great job. We love to read the case notes following incidents, and then discuss these issues that are relevant to our setting, and work out ways we can improve our own practices."

"I think the system seems to be running pretty well. It certainly seems to have avoided the trap of becoming a witch hunt."

"Good committee, especially for small rural hospitals."

"As an Administrator I support the process, but cannot think of further action to improve participation."

"Excellent service - keep as is please"

10   Future developments for consideration

The purpose of the evaluation was to determine to what extent VASM has achieved its objectives, by gathering information through stakeholder consultation, focusing on:

- Qualitative analysis of the effectiveness of the relationship and governance arrangements.

- Qualitative and quantitative (where possible) assessment of the effectiveness of the processes used to collect, maintain and report the VASM data.

- Qualitative analysis of the effectiveness of communication between VASM and Health Services/Clinicians with recommendations arising from the audit process.

The major outcomes of evaluation were focused upon identifying strengths and areas for improvement in relation to:

- The **scope** of activities **undertaken** by VASM;

- The **efficiency** and **effectiveness** of current program operations; and

- Future **developments** to improve the impact of VASM activities.

Findings from the review indicate that VASM has operated effectively and efficiently within its contracted terms of reference to deliver a peer-review audit process that is acceptable to surgical fellows. High rates of hospital participation and surgeon commitment to the audit process have been achieved. Audit coverage across the private hospital sector is now increasing. Methods of case reporting, case assessment and feedback to a range of stakeholders have been subject to continuous quality improvement to maximise relevance and minimise burden (within the operational constraints imposed upon audit operations). The audit has now achieved a level of maturity in data capture and processing.

VASM is now in a position to build upon current achievements, by:

- Maintaining surgical trust and commitment;

- Streamlining a range of processes;

- Extending analysis of data;

- Promoting integration of information across the health system, and

- Targeting messages identified through the audit to a range of different audiences.

By focusing upon these activities, VASM will demonstrate its relevance and strengthen its capacity to positively impact upon changes in the quality and safety of patient management. A total of 25 areas for further consideration are discussed in the following sections.

10.1 Maintaining surgeon trust and commitment

Participation in VASM has been acknowledged as representing a 'cultural shift' for a number of surgeons - despite similarities of the peer review process to existing system level (e.g., VSCC) and long-standing hospital-based procedures for review of surgical mortality and morbidity. Where 'resistance' remains, it appears to be mainly related to:

- Doubts about the true confidentiality of information that is reported to VASM; and/or

- Experiences of inaccurate or ineffective feedback from assessors; leading to

- Doubts about the effectiveness and/or value of the audit process itself; and potentially,

- Threats to the reputational credibility of the audit amongst particular surgical peers.

Accordingly, a number of suggestions are provided below to build upon the trust and commitment to the audit process that has been achieved among participating surgeons and facilitate repair among a minority who remain as detractors.

10.1.1 PROMOTING EARLY AWARENESS AND UNDERSTANDING OF VASM

Promoting early awareness of VASM during undergraduate and post-graduate/specialist training programs was suggested by a number of individuals as a way of enhancing acceptance and participation in the audit process. This would appear to be most effectively achieved through educational partnerships between VASM representatives and respected surgical 'champions' in each specialty area. It is suggested that the educational activities focus upon the rationale for audit of surgical mortality, the outcomes that can be achieved (in each specialty area), and the role of the audit within the broader health system in promoting the quality and safety of patient management. Early education and awareness of audit activities can therefore enhance recognition and cultural acceptance of the benefits of participation following completion of specialty training.

10.1.2 METHODS OF RE-ENGAGING DISAFFECTED AUDIT PARTICIPANTS

Surgeons who have been particularly dissatisfied with the audit process or outcomes have a unique understanding of the experience of VASM. They offer valuable insights and lessons that may be reflected in subsequent case assessments. Moreover, they may (or may not) have a detailed understanding of the current rigor intended in audit design and implementation. Engaging them as case assessors offers the opportunity to expose them to the advantages and disadvantages that are inherent in any audit process, and strengthen mechanisms of case assessment (from personal feedback as assessors) [52].

10.1.3 EMPHASISING THE ROLE OF VASM IN THE BROADER HEALTH SYSTEM

Any understanding of the current role of VASM within the broader health system is dependent upon the knowledge and experience of individual surgeons (and other non-surgical stakeholders attempting to understand the audit process and outcomes). This carries risk. It may result in a relatively 'blind' adoption or rejection of the audit, and/or unrealistic expectations of the outcomes that might be expected from such a process. It is important that VASM understand and communicate its unique contribution to this process

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[52] Subject to suggestions regarding modifications to the first line assessment process outlined below.

and appropriately 'frame' outcomes that may be influenced by their findings (and any subsequent activities to promote quality and safety in patient management). It is acknowledged that this is a complex endeavour. However, with the assistance of the College and the Department of Health, a range of system-level activities to identify adverse events associated with surgical interventions can be mapped to assist surgeons (and others) to understand the unique role of VASM within a broader framework. This would assist in the development of realistic expectations about the impact of VASM. This framework would include (but by no means be limited to):

- Hospital activities, including: Morbidity and Mortality Review Committees; Sentinel event reviews (including where relevant, root cause analyses); Surgical departmental reviews; Collegiate discussions; and, Hospital patient complaints resolution procedures.

- College activities, including: Specialty-specific morbidity and/or mortality registries[53]; other jurisdictional audits of surgical mortality; and, ANZASM.

- Department of Health activities (or supported activities), including: The VSCC (including SOII); VCCAMM; CCOPMM; The Clinical Risk Management program; and, The Office of the Health Services Commissioner.

- A range of other bodies and/or associations, including: The Australian Health Practitioner Regulation Agency; The Australian Medical Association; The Office of the State Coroner; The Victorian Managed Insurance Authority, and Private Medical Indemnity associations.

Such a framework indicates that the outcomes arising from VASM are used to identify potentially emerging 'issues' and/ or effectively 'triangulate' (or validate) the issues arising from a range of health service, College, government, and other organisational activities. VASM represents a unique and systematic approach to independent 'peer review' that transcends health services, has a broader base of enquiry than existing specialist registers, and compliments the work undertaken by the Department of Health, whilst allowing comparison of findings in Victoria with other jurisdictions (in Australia, New Zealand and overseas). In any case, one source of information is unlikely to lead to any system-wide changes. In combination however, the contribution of VASM information adds a valuable source of professional scrutiny to other data to 'build a case for change' in particular areas of identified concern.

10.1.4 DISTINGUISHING VASM FROM OTHER SURGICAL REGISTRIES

A number of individuals consulted during (or reporting into) the evaluation had assumed that VASM was duplicating the role of existing specialty-specific audits or registries of morbidity and/or mortality. Upon further clarification, this is not the case, and may have lead to erroneous assumptions that (a) data relating to surgical mortality is otherwise 'captured' by existing systems and/or (b) that participation in VASM is essentially 'redundant'. In order to clarify misperceptions, further work is required by VASM to distinguish and communicate its role from that of pre-existing registries. Moreover, VASM can work with specialty areas to communicate the differences in role and function to different surgical specialty areas. Examples of differences between VASM and existing specialty registries include (but are unlikely to be limited to):

- Registries are generally statistical in nature – the outputs provide high-level data whereas VASM focuses on individual cases;

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[53]   Discussed below.

- VASM has a feedback loop to the surgeon, whereas the registries generally do not;

- VASM data is submitted by the surgeon. In other words, there is personal involvement, whereas registry data is generally submitted by support staff; and

- The registries are specialty-based, whereas VASM is much broader.

10.1.5   CHALLENGES TO QUALIFIED PRIVILEGE ARRANGEMENTS

Concerns regarding the robustness of current qualified privilege arrangements remain as one of the biggest impediments and/or hesitations about participating in VASM. In reality, these concerns will only be assuaged with appropriate evidence. Accordingly, attempts to legally challenge these arrangements must be actively monitored by VASM (and each jurisdiction and ANZASM as a unifying body) and honestly communicated to surgeons. Issues associated with these challenges and approaches to defending or otherwise resolving them are not within the purview of the current evaluation. Notwithstanding, surgeons require ongoing knowledge of legal challenges associated with case report information provided to VASM in order to make a personal determination about professional exposure associated ongoing involvement. Based upon the feedback received throughout the evaluation, transparent communication about this issue appears to be of paramount importance to surgeons.

10.2   Streamlining a range of current audit processes

10.2.1   CLARIFYING GOVERNANCE FOR THE RELEASE OF PUBLIC INFORMATION

Public statements (without documented approval) in relation to Victorian surgical mortality are not permitted under the terms and conditions of the VASM contract (this by default would appear to apply to any statements issued by ANZASM). Responsibility for this lies with the state government, which is ultimately accountable for the outcomes of treatment of patients in the public health sector - not VASM (or ANZASM). VASM is a contracted service provider to the Victorian Department of Health. Accordingly, guidelines for the release of public information that are currently adopted by VASM must be clarified for any new members of staff and subject to ongoing monitoring between VASM/ANZASM and the Victorian Department of Health to ensure that information is appropriately represented in the broader context of initiatives currently underway to improve the quality of patient management across the state.

10.2.2   RE-INVESTIGATING REQUIREMENTS FOR PATIENT DE-IDENTIFICATION

Current arrangements requiring de-identification of patient names when requesting case reports from surgeons is an area that requires further investigation. Requirements to re-identify patient names prior to locating medical records represent one of the most significant imposts upon surgeons who are willing to participate in the audit. The State of Victoria is the only state where de-identification is required. Other states include patient names on the surgical case forms.

Specific legal advice supporting this requirement from the Department of Health was not located during the review. Instead, Departmental policy advice relating to protection of privacy and confidentiality in management of patient information (via minimising the 'identifiability' of patient records) was reported. Accordingly, it would appear prudent that

appropriate to obtain specific legal advice from the Department of Health in relation to any ongoing requirement to de-identify requests for case report information, in the context of:

- The prevailing qualified privilege arrangements in place for VASM;

- The absence of specifically documented evidence of over-riding state legislative provisions; and

- The substantive burden associated with this previous advice (and foreseeable threat to ongoing compliance);

It is suggested that these requirements be reviewed with the Department of Health **legal representatives** to obtain an appropriate determination of state legislation vis a vis commonwealth protections currently in place.

10.2.3   HOSPITAL PROCESSES FOR LOCATION OF MEDICAL RECORDS

Pending specific legal advice from the Department of Health requiring ongoing de-identification of requests for case note review, VASM might consider a role in facilitating information sharing between hospitals about methods of facilitating identification of patients for surgeons, in addition to streamlining methods of access to medical records for subsequent review. A number of strategies had been reported during the consultation process (e.g., parallel notifications to relevant surgeons about deaths that were reported to VASM). A more systematic examination of strategies used by different hospitals to streamline the identification of patients, location and provision of medical records would be beneficial to surgeons and contribute to more timely provision of case report information to VASM.

10.2.4   MONITORING ELECTRONIC SUBMISSION OF CASE REPORT INFORMATION

Electronic submission of case reports has been implemented by VASM. Whilst many surgeons appreciated this development, a number expressed frustration at difficulties in gaining access for on-line reporting (e.g., login names and user passwords). It is understood that VASM has been attempting to address these issues. It is suggested that information technology systems also be explored that allow VASM to monitor difficulties in accessing on-line reporting so that issues may be more pro-actively addressed with affected surgeons (who may not always notify VASM when difficulties arise).

10.2.5   EXPLORING CRITERIA FOR 'LEVELS' OF COMPLETION IN CASE REPORTING

It is broadly acknowledged that the complexity of patients presenting to hospital for surgical treatment has increased over recent years. This trend is anticipated to continue. Within this context, the incidence of patient mortality is likely to rise, resulting in an increase in the number of death notifications to VASM and subsequent requests for case reports from surgeons. During the evaluation a number of surgeons queried the need to complete a detailed case report for patients who were pre-surgically assessed to be at 'considerable' or even 'expected' overall risk of death. Given the current volume of case reports required from surgeons (and the likelihood that these may increase in future), methods of streamlining the level of case reporting are worthy of further consideration by VASM.

Reporting according to pre-surgical risk

A revision to the case report form might be considered in which a *short-form case report* is required for higher risk patients, including for example:

- Surgeon details (Question 1)

- Admission details (Question 2)

- Diagnostic details (Question 3)

- Risk factors (Question 4)

- ASA grade (Question 5)

- Risk of death (Question 11)

- Management issues, impact upon outcome, and preventability (Question 21)[54]

Subject to the level of patient acuity, presence of management issues, impact upon outcome and potential preventability, case reports might then require additional information (currently collected for all patients). This would lessen the reporting burden for surgeons.

However, despite any future changes to case reporting for patients deemed to be at higher risk of death prior to surgery, it is also acknowledged that improvements in patient management may still be required in these cases. *Accordingly,* **a random sample of short-form case reports should be regularly subject to more detailed audit**. *This could be achieved by estimating an appropriate audit sample, and requesting that the surgeon complete a full case report (i.e., the remaining questions on the standard report form) as a follow-up to their original short-form submission for this smaller sample of cases.* If, following routine audit significant information was being omitted a return to full-form reporting should be considered. It is also recognised that a major drawback of this approach would be a loss of information reported to VASM regarding routine aspects of patient management that are currently provided on the case report forms.

Auto populated reporting

An alternative approach to streamlining case reports without any significant loss of information to VASM would be to explore options for hospital based auto-population of case report information from existing information technology systems. It is understood that a number of health services have currently developed (or are in the process of developing) electronic systems in which basic patient information is already completed in case report forms. This approach has the potential to leave the key elements associated with description and assessment of issues associated with patient management to be completed by surgeons, significantly lessening the reporting burden.

VASM could have a role in exploring these systems further and promoting the implementation of auto-completed forms with health services not currently undertaking these activities to lessen current burden placed upon surgeons. VASM could provide a role in promoting consistency of approach across the sector and in integrating efforts to reduce the potential for duplicated effort.

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[54] Note: recommendations are provided for improving the wording to this question in the following sections and this improved version of Question 21 would be recommended for inclusion in any short-form case report.

10.2.6   STRENGTHENING PROCESSES FOR FIRST LINE ASSESSMENT

A number of suggestions were made during the evaluation about methods of strengthening the case assessment process. A number of stakeholders suggested formal training of assessors. However, others recognised that this would be a time consuming, expensive and potentially unnecessary step. Nevertheless, current approaches undertaken by VASM for FLA might be strengthened in a less onerous manner, maximising the value of constructive feedback to individual surgeons, and may also reduce the number of cases referred for SLA.

- First, VASM could start monitoring the level of agreement between individual First Line Assessors and surgeon reports. Where any consistent pattern of agreement/disagreement emerges (indicating a potential bias in either direction), a routine follow-up audit of their assessment findings could occur to check the consistency of their judgements with other independent raters (described below);

- Second, surgeons undertaking a FLA for the first time could also be monitored to identify the consistency of their judgements with more experienced surgical fellows (who have completed a number of first line assessment reports).

Given that the audit is founded on the basis of peer review, it is suggested that principles of peer review adopted in professional publications be adopted. New First Line Assessors (or assessors in which a consistent pattern of outcomes was observed) could be paired by VASM with more experienced reviewers. Both would undertake an FLA on the same case independently. Reviewers would be blinded to the identity of each other but aware that their findings were being compared with a professional peer about the same case report (as a routine task undertaken by VASM). VASM could arbitrate or independently determine the outcomes reported back to surgeons where any differences in findings emerge between the two assessors. Where differences emerge, feedback about the assessment findings could be discussed with the relevant reviewer by VASM. Reviewers demonstrating inconsistent findings could then be paired with more experienced reviewers on subsequent FLAs until a greater level of consistency emerges from their assessment processes.

10.2.7   REVISING THE CASE RECORD FORM TO CLARIFY QUESTIONS

Notwithstanding previous suggestions about re-ordering case report questions to distinguish a short-form and regular case report form, two further modifications to the current questions presented in the case form are suggested for consideration by VASM.

Question 17 could be subject to further improvement in order to align ratings made by surgeons with those made by first and second line assessors. More specifically:

- These items are framed for assessors in terms of "Were there any areas for consideration, of concern or adverse events in the following areas"; whereas

- These items are framed in the context of general patient management for surgeons ("Do you consider management could have been improved in the following areas").

In terms of the question frames and the cognitive flow of question placement (and information recalled to consider answers) for surgeons, these issues are answered prior to any specific consideration and description of consideration, concerns or adverse events. Thus, it is reasonable to assume that surgeons may be responding to this question based upon broader issues that may have impacted upon patient management rather than specific concerns about particular patient management issues considered by assessors. Placing

these questions in the same order and with the same question frame on the case report form should be considered by VASM.

Question 21 could be simplified. Asking surgeons and assessors "Were there any areas for CONSIDERATION, of CONCERN, or ADVERSE EVENTS" is a compound question that is duplicated in case report and assessment forms. It is suggested that this question be reworded to a more general statement (e.g., "Were there any issues associated with the management of this patient?") in order to:

- Allow subsequent description of issues that may not be areas for specific consideration, concern or adverse events, but may be significant in determining the outcomes for a particular patient (e.g., Patient was at high risk of death from other factors that are not recorded on the case report or assessment forms). This would accommodate suggestions by a number of surgeons for a greater capacity to provide descriptive information in case reporting without the adding further questions; and

- Allow subsequent classification of areas for 'consideration', 'concern', or 'adverse events' (if relevant) in the proceeding questions.

Associated ratings with Question 21 relating to 'impact upon outcome', and 'preventability' could then only be required if a rating of 'consideration/concern/adverse event' was subsequently made by surgeons or case assessors.

10.2.8   UNDERTAKING SPECIFIC STUDIES OF INTER-RATER RELIABILITY

The current evaluation was able to provide indicative estimates of inter-rater reliability, which were encouraging. More detailed studies of inter-rater reliability are required and could be relatively easily achieved on the basis of current data. Particular emphasis should be placed upon levels of FLA agreement (excluding new or first time assessors, as previously discussed). A sample of current case reports (with sufficient statistical size and power) could be selected from experienced FLA and provided to a second FLA for completion. Levels of agreement could be calculated for key questions of interest (analogous to the results presented in the current report). This could be undertaken using existing VASM data as an independent quality improvement project.

For SLAs, a prospective inter-rater reliability study could be established. A sample of case reports (of sufficient size and power) could be selected and submitted to two independent SLAs. Inter-rater agreement on key items of interest could then be assessed.

Based upon the findings of these studies, it would then be possible to identify:

- Key questions that need review (in terms of specification and/or rating scales employed);

- Areas where additional/specific questions may need to be asked; and

- Questions that are adding unreliable 'noise' to the assessment process, which if unable to be improved can be deleted from the reporting and assessment forms to minimise ongoing reporting burden.

10.2.9   VALIDATING FINDINGS WITH OTHER SOURCES OF DATA

Based upon the findings of the evaluation, a number of stakeholders are seeking further comparisons of the findings arising from VASM with other sources of data. Within Victoria a

number of potential sources of comparison (in addition to data already compared with the Victorian Admitted Episodes Dataset) could be explored including:

- De-identified outcomes arising from the Victorian Surgical Consultative Council and their Surgical Outcomes Improvement Initiative;

- Data reported to the Department of Health relating to adverse events via the Victorian Hospital Information Management System; in addition to

- Overviews of relevant scientific literature in key areas of concern undertaken by VASM or in collaboration with other agencies.

In addition, it would also be possible to conduct more detailed studies into the validity of ratings provided by surgeons, and case assessors. Building upon information available within the broader health system, coronial reports might be considered as an independent 'standard' against which key findings of case reports and assessments might be examined. This would allow for the use of information that is unavailable at the time of case reporting. Studies would involve a sample of case reports and FLAs to be matched against findings of the Coroner's Office. Comparisons with coronial reports could be used as a basis for:

- Determining rates of false positives, false negatives and the overall diagnostic accuracy of case reports and assessments undertaken by VASM; and

- Providing useful information about any questions that may be needed to enhance the future sensitivity and specificity of audit findings.

10.2.10 MONITORING AND REPORTING THE DEGREE OF AUDIT 'COVERAGE'

A number of stakeholders considered it important for VASM to establish a comprehensive 'denominator' of all deaths relating to surgical intervention across the state. Others acknowledged that the achievement of a comprehensive 'denominator' was a difficult issue to address by any of the existing data systems collecting information related to surgical mortality. This issue required further consideration by VASM. The capacity to capture all deaths is not necessarily problematic for the audit unless presentations of audit findings are attempting to claim a level of generalisability that is not supported by the coverage of the data that is collected. Accordingly, the level of data coverage should be investigated and reported. This may be achieved by comparing the number of death notifications with VAED data that has been linked to records from the Office of Births, Deaths and Marriages. Once the level of 'capture' of all deaths by the VAED is known, the level of coverage of VASM death notifications can be identified. It is suggested that further discussions occur between VASM and the Victorian Data Linkage Unit within the Department of Health to identify the possibility of reporting this information in future annual reports.

10.2.11 FOCUSING UPON EMERGING PATTERNS OF PERFORMANCE

One of the criticisms of reports arising from VASM that emerged during the consultation process involved the presentation of findings that were already 'known' to surgeons and/or health services. Whilst it was acknowledged that identification of similar issues to other sources of data was beneficial, by providing further confirmatory evidence, a preference was also expressed for VASM to highlight new or emerging issues with the potential to impact upon patient management.

In a related issue, the capacity to start monitoring trends in outcomes arising from the audit has also been noted by VASM staff and should feature in ongoing communications with surgical Fellows and other key audit stakeholders.

10.2.12 MONITORING OUTCOMES IN 'AREAS OF CONCERN'

VASM has developed a robust and standardized system of case reporting and peer review. The capacity to utilise this infrastructure to undertake further monitoring of specific areas of ongoing concern related to surgical management was also suggested by a number of stakeholders. More specifically, particular areas of concern could be targeted and subject to a small number of additional questions over a given period of time to monitor the impact of any interventions targeting system-wide improvement. Obviously, decisions regarding the targeting of specific areas and the questions to be included would need to be carefully considered by VASM, the VSCC and a number of other key stakeholders involved in system-wide monitoring.

10.2.13 EXTENDING ANALYSIS TO FOCUS UPON SELECTED AREAS OF MORBIDITY

There was a significant amount of discussion in the consultation process about whether VASM could/should be extended to include high-level morbidity. A range of opinions was expressed. Arguments in favour of extending the scope included:

- That the concentration on mortality is limiting and that broadening the process to extreme events may provide better information and understanding of process failures;

- That death should not be the only indicator of a need to investigate and review;

- More issues may be identified if morbidity was assessed (e.g., adherence to pre-surgical check-lists, hand washing, handover, VTE prophylaxis protocols etc.); but

- That it would need to be limited in scope if it was to be effective - based on high-end severity rating and a clear definition of "adverse event".

However, those arguing against this line of thinking indicated:

- Moving to morbidity is too early and that the current process is not sufficiently bedded down. The introduction of such a significant change could undermine the achievements to date.

- That it would increase workload, which is already a concern among some surgeons.

- That it would increase perceptions of role overlap between VASM and the VSCC.

It was noted that any such move would require detailed design in relation to the process and could not be achieved "overnight". This remains an area for future consideration by VASM but only following appropriate discussions with the VSCC and Department of Health - who remain primarily responsible for monitoring and addressing issues relating to surgical morbidity.

10.3 Promoting integration of information across the health system

10.3.1 DEVELOPING SUMMARY REPORTS FOR PARTICIPATING HOSPITALS

Currently, any feedback to the hospital on the outcome of a particular audit is at the discretion of individual surgeons. One of the points for improvement noted consistently in the consultation process was the need to better-link VASM processes with those of individual hospitals. While it is recognised that VASM is focussed on the individual surgeon, the concept of "closing the loop" as part of the broader morbidity and mortality audit process was raised on a number of occasions.

Positive feedback was provided about briefings from VASM to surgeon groups at individual hospitals. Accordingly it would appear that further presentation of findings to individual hospitals outlining themes identified from review of cases would be beneficial (as opposed to reports based on themes identified by VASM across hospitals). At a more fundamental level, VASM could summarise basic information about the characteristics of death notifications received from individual hospitals to assist monitoring by internal quality and safety committees. This approach would be analogous to the Hospital Profile reports generated by the Victorian Consultative Council on Obstetric and Paediatric Mortality and Morbidity. It is understood that VASM are currently working on a similar approach to providing hospital based reports without compromising the confidentiality of information provided by individual surgeons.

10.4 Targeting messages identified through the audit

10.4.1 PROMOTING SEMINARS TO DISCUSS KEY ISSUES OF CONCERN

Workshops have been sponsored by audits of surgical mortality in other Australian jurisdictions to explore approaches to addressing issues of concern identified through the audit process. Positive feedback about these workshops has also been reported. These activities represent a tangible outcome of the work undertaken by VASM and would assist to build profile, credibility and a sense of value arising from the work of the audit. In the Victorian context, it is appreciated that such workshops would need to involve the cooperation of the VSCC. Notwithstanding, it is suggested that this approach be adopted to extend the impact of the work undertaken by VASM, and understood that a number of workshops are currently in the planning stages between VASM and the VSCC

10.4.2 DEVELOPING A PLAIN LANGUAGE SUMMARY OF THE ANNUAL REPORT

Current annual reports generated by VASM are targeted at readers who are 'informed' about issues and approaches to surgical practice. A gap in current communications was noted for consumers of health services or other members of the community who may not have a specialised knowledge of surgical procedures. Accordingly, the production of a plain language summary of information and outcomes arising from VASM annual reports was suggested. It is appreciated however, that this may be a relatively delicate undertaking given the levels of community sensitivity surrounding issues associated with hospital deaths.

10.4.3 REPORTING FUTURE DIRECTIONS ARIRISING FROM THE WORK OF THE AUDIT

In a further demonstration of the value added to surgeons, hospitals and the Victorian health system, active attempts to report developments in policies, practices and patient management that have been influenced by the work of VASM should be undertaken. It is appreciated that one source of information relating to surgical mortality is unlikely to be the

sole trigger for any improvement. Notwithstanding, concerns about the 'value' of future funding to the audit require additional demonstration of the achievements that have been influenced by the work of VASM. These could be highlighted in the annual report.

Inherent in this approach is an active approach to promoting change in specific areas of practice. While frustration was expressed about the difficulty of translating knowledge of "issues" into change in practice and making it "stick", the responsibility for such change can easily be obfuscated. Nevertheless, VASM should have an increased role in promoting change of practice indicated by the audit process.

10.4.4 INCREASE PEER-REVIEWED PUBLICATIONS AND PROFESSIONAL PRESENTATIONS

Since commencement, VASM has been active in promoting the work of the audit across in a variety of fora. Now that the audit has achieved maturity, greater attention will focus upon the outputs and outcomes arising from VASM. Ongoing attention to publication in peer reviewed journals and professional presentations will represent another important outcome arising from the work of the audit, and continue to subject audit processes and findings to peer-reviewed scrutiny.

10.4.5 ENHANCED USE OF THE VASM WEB-SITE

Without doubt, the least recognised source of information about VASM was the web-site. Current web-site presentation is deeply embedded within the College web-site and not readily accessible (unless deliberate attempts to search for it are made). It is therefore unsurprising that the current web-site is not used to any great degree by surgical fellows. The new College website that will be launched in November should to address these concerns.

Consultations also re-iterated the importance of active (or push) communications to surgeons that are targeted to their particular areas of professional interest. Greater monitoring and use of the web-site could be achieved via this approach, using electronic mail with summary information and links to the web-site. Ongoing use of the VASM pages on the RACS web-site should be monitored by VASM (via utilisation statistics) with a view to modifying the amount or format of information presented so that it is more easily identifiable by Fellows and other stakeholders and appealing as a source of information about the audit activities and outcomes.

11 Summary and conclusions

In summary, findings from the review indicate that VASM has operated effectively and efficiently within its contracted terms of reference to deliver a peer-review audit process that is acceptable to surgical fellows. High rates of hospital participation and surgeon commitment to the audit process have been achieved. Audit coverage across the private hospital sector is now increasing. Methods of case reporting, case assessment and feedback to a range of stakeholders have been subject to continuous quality improvement to maximise relevance and minimise burden (within the operational constraints imposed upon audit operations). The audit has now achieved a level of maturity in data capture and processing.

VASM is now in a position to build upon current achievements. A wide range of enhancements were suggested to maximise the future operation and impact of VASM by those that had participated in the evaluation process. These suggestions were taken in the context of the overall findings of the evaluation and used as a basis for a number of 'areas for further development'.

Over the course of the evaluation it became apparent that VASM staff were already working towards improvements in some of these areas (e.g., hospital reporting, summary reporting of the annual report, seminar planning for issues arising from the audit). In relation to other areas it is suggested that:

- In the short term, VASM focus upon:
  - Reinforcing governance for the release of public information amongst any new Management Committee Members or other staff involved with VASM;
  - Clarifying current case report questions in need of revision;
  - Exploring methods of re-engaging disaffected audit participants as active assessors in the audit process;
  - Re-investigating requirements for patient de-identification, and if unsuccessful assisting in identifying hospital processes for location of medical records;
  - Exploring options for different 'levels of case reporting' with a focus upon hospital information technology platforms that may auto-populate pre-existing patient information prior to form completion by individual surgeons;
  - Strengthening processes for first line assessment to monitor the consistency between ratings provided by different surgeons;
  - Enhancing analysis of audit coverage via discussion with the Department of Health and subsequent reporting of VASM findings against linked VAED – Office of Births, Deaths and Marriages data;
  - Monitoring electronic interfaces between surgeons and VASM (e.g., attempts to complete case report information on line and general use, duration and interest in the VASM web-site) so that pro-active improvements can be made to enhance the value of these forms of communication (rather than waiting for negative feedback);
  - Reporting future directions arising from the work of the audit in subsequent annual reports, together with a plain language summary of the annual report for readers who may be less informed about surgical practice or statistical tables and graphs; and

- ▶ Placing greater emphasis in annual reporting on emerging patterns of performance that have been identified through the audit, particularly where new patterns may be indicated (compared with information obtained from other sources).

- In the medium term, VASM undertake:

  - ▶ More active involvement in undergraduate and specialist medical training to improve early awareness and familiarity with the audit place, purpose, processes and impacts upon the health system;

  - ▶ Specific studies of inter-rater reliability and validity of audit findings against a broader range of independent sources of information;

  - ▶ Selective Monitoring outcomes in a broader range of 'areas of concern'; and

  - ▶ Ongoing monitoring and reporting of any challenges to qualified privilege arrangements protecting information reported to the audit.

- In the longer term, VASM consider any further changes focusing upon any extended analysis of selected areas of morbidity once the audit process is fully embedded and discussions with other bodies responsible for monitoring and reporting of surgical morbidity have taken place (e.g., VSCC).

By focusing upon these activities, VASM will demonstrate its relevance and strengthen its capacity to positively impact upon changes in the quality and safety of patient management.

Appendix 1 – See Technical Supplement