

# Stakeholder's perceived value of surgical audit data provided by the Victorian Audit of Surgical Mortality

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## Abstract

**Background:** Clinical audits can vary in their effectiveness depending on how the information is provided and the relationship between those giving and receiving feedback. In the Australian state of Victoria, the Victorian Audit of Surgical Mortality (VASM) is a state-wide mortality audit that, prior to this study, did not have a bidirectional feedback mechanism in place to gauge perception of the audit held by its stakeholders. **Objective:** We aimed to investigate the perceived quality of the audit's information and the effectiveness of the audit's communication strategies from the stakeholder population. **Methods:** We used a mixed methods approach to provide open-ended explorations into stakeholders' views while also providing structured tools for conducting annual reviews. The qualitative data were analysed using an inductive content analysis. **Results:** Between 2015 and 2017, 240 VASM stakeholders were contacted, of whom 82 (34.2%) agreed to be interviewed. The VASM's data were perceived to be of high quality and used in a variety of ways. The audit's communication strategies were seen to be adequate but could be more targeted to the stakeholder. There is a perception that the audit might not be relevant to hospital stakeholders that are not themselves clinicians, despite direct involvement with the audit. **Conclusion:** This study helps to explain the role the audit plays among its stakeholders and offers three overarching recommendations for improvement strategies: produce data sharing strategies that are relevant to rural or highly specialised surgical centres, improve communication to be targeted at stakeholders and explore methods to provide feedback to hospital management with more individualised feedback.

## Keywords (MeSH)

clinical audit; quality assurance; healthcare; healthcare quality; access; evaluation; information dissemination; health information management; Australia

## Introduction

The Australian Commission on Safety and Quality in Health Care identified improvements in clinical governance as a priority. Clinical governance can facilitate learning opportunities and ongoing improvements in the Australian healthcare system (Australian Commission on Safety and Quality in Health Care, 2018). Clinical governance is part of corporate governance and includes appropriate culture and systems that allow accountability for assuring the delivery of health services that are safe, effective, integrated, high quality and continuously improving (Australian Commission on Safety and Quality in Health Care, 2017). Clinical audits are incorporated into clinical governance as an activity to improve healthcare systems. Like quality registries, clinical audits can provide an evidence-based framework for ensuring that quality and

safety are of a high standard by highlighting current deficiencies of care (McNeil et al., 2010; Victorian Audit of Surgical Mortality, 2017a).

The effectiveness of clinical audits and their feedback is varied. A 2012 Cochrane review showed that clinical audits can be more effective if poor performance is identified, the

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source of feedback is a supervisor or colleague, it is delivered frequently and is verbal, written and given with a clear action plan (Ivers et al., 2012). In addition, the success of clinical audits relies on strong leadership and engagement with various stakeholders and a rigorous audit methodology that considers sample size, set inclusion and exclusion criteria, data collection tools, data processes and ongoing personnel training (Ullman et al., 2018). Findings from clinical audits can recommend strategies on individual and group attitudes towards the standards of care. These organisational cultures can influence healthcare outcomes (Vaughn et al., 2019). The implementation of clinical audits could play a vital role in changing work culture (Curry et al., 2018; Parmelli et al., 2011), consequently reducing preventable adverse outcomes and improving the provision of patient care.

The Victorian Audit of Surgical Mortality (VASM) is one such clinical audit that is carried out statewide in Victoria, Australia (Ivers et al., 2012; Ullman et al., 2018). The clinical governance structure of the audit is based on the operating principles specified in the Australian Commission on Safety and Quality in Health Care (2012). The VASM is part of the Australian and New Zealand Audit of Surgical Mortality, which is conducted under the auspices of the Royal Australasian College of Surgeons. The VASM is a retrospective, observational clinical audit established to seek and review all deaths associated with surgical care in the state of Victoria. It utilises a peer-review system where individual feedback is provided to the treating surgeon to improve their surgical practice.

Since the VASM was implemented in 2007, a reduction in mortality and adverse clinical outcomes has been observed and participation and acceptance of the audit by clinicians increased (Beiles et al., 2014; Retegan et al., 2013). In a 2011 evaluation of the audit, Aspex Consulting (2011) reported that the audit's role in the surgical community (clinical stakeholders) is different to its engagement with hospital and government stakeholders. The VASM's stakeholders include clinical stakeholders (surgeons and surgical trainees), hospital stakeholders (hospital management (including clinical management), health information and administration) and government stakeholders (employees of the Department of Health and Human Services (DHHS) at the State Government of Victoria). Until 2015, the audit did not have a bidirectional feedback mechanism and little was known regarding the perceived value of the information provided by the audit to its hospital- and government-stakeholder population. The process of how feedback is provided to stakeholders and the relationship between VASM management – who provide feedback – and hospital and government stakeholders – who receive feedback – may be key to the audit's success. Moreover, in 2015, an external evaluation that was conducted on the VASM found that a key performance indicator for ongoing consideration was to monitor the perceived value of information provided by the audit which would promote ongoing improvements to surgical safety, quality and confidence across the Victorian health system (Aspex Consulting, 2015).

## *Aims and objectives*

The aim of this study was to investigate the perception of the VASM, including the perceived quality of the audit's information and the effectiveness of the audit's communication strategies, by the hospital and government stakeholder population. From this, we aimed to generate recommendations for the future of the mortality audit.

## **Methods**

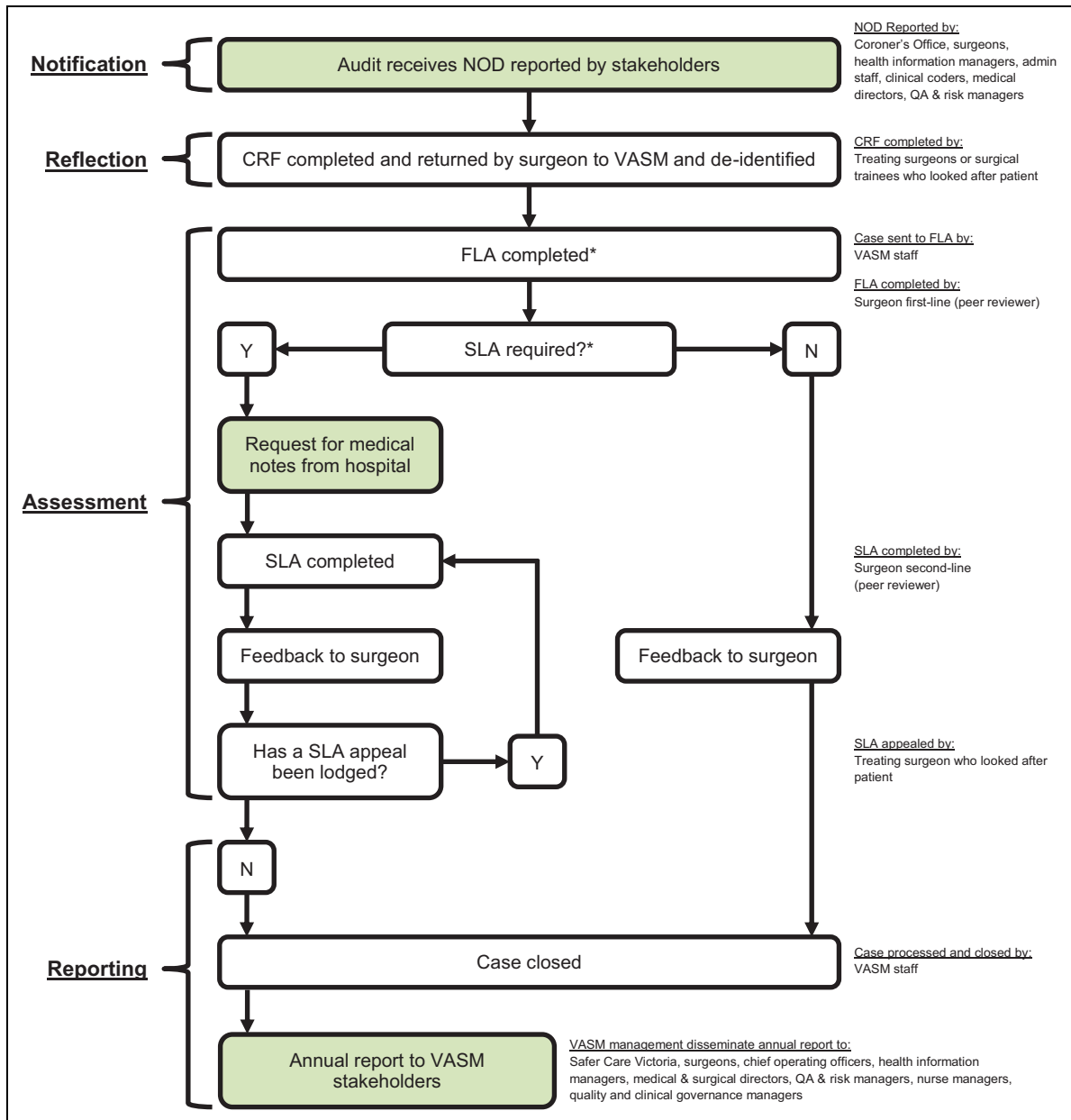
### *Sample and recruitment*

The hospital stakeholders were the staff members employed in 127 public and private hospitals that undertook surgical procedures located throughout the state of Victoria. These hospital stakeholders, nominated from each hospital's management, participated in the audit on a regular basis by reporting the monthly notification of deaths from their hospital data, providing additional documentation for peer review (such as medical case notes) and reading and disseminating the audit information and recommendations among their professional peers within their respective hospitals. Figure 1 shows the VASM audit flow and the stakeholders' involvement. The hospital-stakeholder contact details were classified into three groups based on each hospital's respective organisational structure and entered in a customised database as follows: administration, management and health information-related staff. The administration group comprised of personal or executive assistants, office personnel, risk management and theatre liaison staff. The management group consisted of audit and data managers, chairpersons, chief executive officers, chief nurses, chief surgical directors, general managers, quality and clinical governance staff, quality coordinators, chief health information managers and theatre managers. The health information-related group included health information staff, medical records staff, quality officers and clinical coders. All hospital stakeholders are reported here as "metropolitan" and "rural" based on the Rural Remote and Metropolitan Areas (RRMA) classification (Australian Institute of Health and Welfare, 2004). Government representatives from the DHHS in the State of Victoria who had direct contact with the VASM management were also included as a separate group called government stakeholders.

Stakeholders who indicated having a background in health information management were employed under any of the three hospital-stakeholder groups based on the hospital internal organisational structure. The VASM management verifies yearly the validity of the contacts and requests cross verification and updates from hospital and government stakeholders – hereafter, collectively referred to as simply "stakeholders" for the purpose of this study – to ensure it reflects appropriately the relevant organisational structure.

### *Data collection*

A mixed methods approach was used to provide open-ended explorations into stakeholders' views, while also providing structured tools for repeated annual review. We



**Figure 1.** Audit process with stakeholder involvement. *Note.* The figure outlines the flow through the VASM audit process. NODs are made by a number of professional bodies, including hospital stakeholders. A CRF for each notification is written or reviewed by the treating surgeon. These are de-identified and passed on to first-line assessors and, if necessary, second-line assessors, who provide feedback. For second-line assessments, hospital stakeholders are contacted for medical notes to be passed to VASM. Individual feedback (case-by-case) is provided to the treating surgeon and collated, de-identified feedback is provided via annual reporting to several management bodies, including hospital management. Hospital stakeholders who report to VASM are risk management, theatre liaison staff and clinical coders, audit and data managers, nurse managers, surgical directors, general managers, quality and clinical governance staff, quality coordinators, chief health information managers and theatre managers, health information staff and medical records and quality officers. NOD: notification of death; CRF: case record form; FLA: first-line assessment; SLA: second-line assessment by VASM peer reviewers; VASM: Victorian Audit of Surgical Mortality. VASM peer reviewers use the VASM Assessors' guideline from [www.surgeons.org/vasm](http://www.surgeons.org/vasm).

used a convergent parallel mixed methods design, collecting quantitative and qualitative data concurrently (Watkins and Gioia, 2015). The project was repeated annually over 3 years, with the aim of reaching saturation to highlight longitudinal issues of perception of the audit. We used a direct purposive sampling approach (Pope et al., 2002) to divide the hospital stakeholders into the three categories (listed above) and ensure participation from each hospital-stakeholder group. Random sampling within these

categories was conducted to reduce selection bias from those stakeholders that had regular communication with the audit. Stakeholders were only able to be interviewed once and thus those interviewed were excluded from subsequent years (see Box 1). We used a structured interview style using a purposely designed interview schedule that included six closed questions using the Likert scale (Joshi et al., 2015) and seven open-ended questions (see Online Appendix 1). Two researchers designed the structured

**Box I.** Sampling strategy from 2015 to 2017.<sup>a</sup>

	2015	2016	2017
<b>Total contacts eligible for interview</b>	459	486	330
<b>Contacts contacted</b>	53	102	85
Interviewed	26	27	29
Non-respondents	21	20	15
Lost to follow-up	6	55	41

<sup>a</sup>Box I outlines the total number of stakeholders eligible for interview across the 3 years. Stakeholders were only able to be interviewed once and thus those interviewed were excluded from subsequent years. Non-respondents = declined/busy; lost to follow-up = left message/lost to follow-up.

interview based on the research question and internal audit requirements. The interview question items related to understanding of the audit process, engagement with communication, quality of information (such as reports, case studies, newsletters and scientific papers), quality of events, usefulness of the VASM, effectiveness of communication and an open-ended question for other feedback from the stakeholders. We conducted phone interviews by initially calling the randomly selected list of participants. All eight interviewers were VASM audit staff, including five junior staff who were trained in interview methods and, for practical reasons, helped conducted interviews. Data collection was audio-recorded and transcribed verbatim. Each transcription was quality double-checked by at least one other researcher.

Consent was acquired from all participants interviewed regarding the recording, transcription and publication of their responses. Consent was provided verbally over the phone before recording and then re-obtained during the recorded interview process. All participants were assigned a numeric code, which was used to anonymise transcription and data analysis.

**Data analysis**

We used inductive content analysis to explore the qualitative data (Elo and Kyngas, 2008). De-identified interview transcripts were independently co-coded by two author-researchers. The data were read and reread to categorise and index the themes (Pope et al., 2000). At the completion of each year, themes were generated from the codes and organised under overarching categories. This process was repeated with the total dataset after the completion of the 3-year period.

**Ethics approval**

Ethics approval was obtained from the Royal Australasian College of Surgeons Ethics Committee.

**Results****Participation**

At the end of 2017, the VASM's hospital-stakeholder group consisted of 330 contacts across hospitals in Victoria and

**Table I.** Participation by hospital location and stakeholder role.

RRMA classification Stakeholder group	2015		2016		2017		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Hospital stakeholders	25	96.2	25	92.6	27	93.1	77	93.9
RRMA M1 – M2	15	57.7	15	55.6	12	41.4	42	51.2
Health information related	2	7.7	7	25.9	6	20.7	15	18.3
General administration	3	11.5	0	0.0	0	0.0	3	3.7
Management	10	38.5	8	29.6	6	20.7	24	29.3
RRMA R1 – R3	10	38.5	10	37.0	15	51.7	35	42.7
Health information related	4	15.4	4	14.8	8	27.6	16	19.5
General administration	0	0.0	2	7.4	1	3.4	3	3.7
Management	6	23.1	4	14.8	6	20.7	16	19.5
Government stakeholders	1	3.8	2	7.4	2	6.9	5	6.1
<b>Total</b>	<b>26</b>	<b>31.7</b>	<b>27</b>	<b>32.9</b>	<b>29</b>	<b>35.4</b>	<b>82</b>	<b>100.0</b>

*n*: number of stakeholders interviewed, also represented as a percentage over the total interview pool for each year; RRMA M1: capital cities; RRMA M2: other metropolitan; RRMA R1: large rural centres; RRMA R2: small rural centres; RRMA R3: other rural centres.

13 government representatives. A total of 240 stakeholders were contacted, of which 34.2% (82/240) agreed to participate in the study. Of stakeholders contacted directly, 13.8% (33/240) declined and the remaining stakeholders were either uncontactable or lost to follow-up. A similar participation uptake was noted among all stakeholder groups across the 3 years. Sampling results are presented in Table 1.

**Quantitative results**

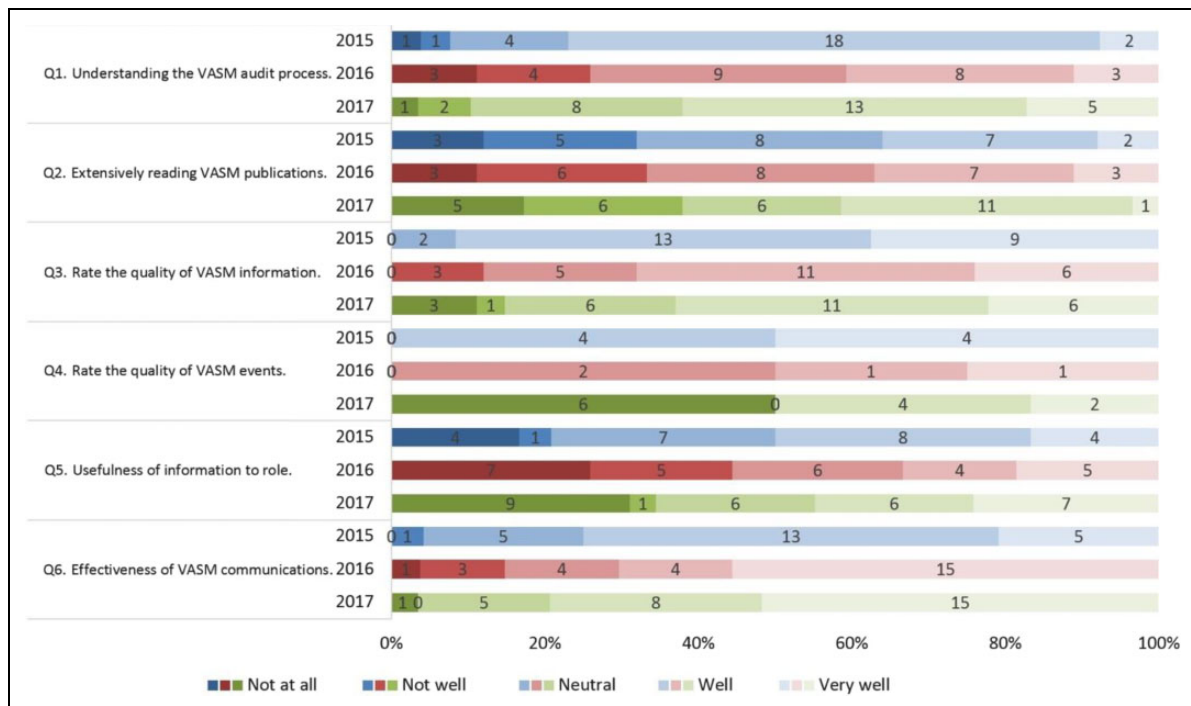
We asked six Likert-scale scored questions of the stakeholders. The responses are presented in Figure 2. These scores should be considered in conjunction with the qualitative data.

**Qualitative results**

We categorised all themes as those perceptions relating to (i) the VASM's data and information or (ii) the relationship between the audit and its stakeholders (see Online Appendix 2 for additional selected quotations including those listed below). By the third year (2017), no new themes or insights were emerging from the data (data saturation) (Mason, 2010).

**The VASM's information**

The first overarching category of themes were those relating directly to the clinical findings from the VASM, including the perception of the quality and scope of the publications and educational events VASM produces.



**Figure 2.** Likert scored perceptions of the VASM by year. *Note.* The figure outlines the perceptions of the VASM scored using a Likert scale and categorised by year. Stakeholders were asked to score VASM over six domains (see the interview schedule in Online Appendix 1). *n*: number of stakeholders responding in each Likert category. Likert scale ranging from 1 = “not at all” to 5 = “very well.” Some questions were not answered as they were not always applicable to the stakeholder (e.g. attendance at educational event). VASM: Victorian Audit of Surgical Mortality.

### VASM is perceived to be of high quality

Throughout the interview data, the audit was perceived to be of high quality. Regardless of their use of the data, the role of the stakeholder or the relevance of the data to the stakeholder, the perception was that the audit produces data and recommendations of high quality. For example, one manager stated: “I think the breadth of the data is very good. It’s always that challenge on what factors to focus” (Management, Public, RRMA M1: Capital cities, 2017, ID: 1.1.C).

Only a small number of respondents perceived the audit to be an audit of low to moderate quality, with the primary concern regarding the perception that the audit was dependent on those who comply with the process. For example: “It’s a privilege database and so you rely on people’s sharing their own experiences to some extent” (Management, Public, RRMA R1: Large rural centres, 2017, ID: 1.1.D).

### VASM’s information is used in a variety of ways

Participants’ responses varied in their reported “uses” of the data. We grouped these into the following three categories:

1. As a benchmarking and validation tool, where participants spoke of the use of the VASM to compare themselves to other services. For example: “It identifies deficiencies in the system that may be associated with mortality. But it identifies that you need to go back and look at that to avoid both morbidity and

mortality” (Management, Public, RRMA R3: Other rural centres, 2015, ID: 1.2.B).

2. For policy and clinical governance, allowing services to meet clinical governance requirements. For example: “We are happy to keep participating in [the VASM] so we do get those reports. If an issue does come up, we’re across it and with the level of clinical governance that is now required it is good to be involved in something that is across the state” (Health Information Related, Public, RRMA R3: Other rural centres, 2015, ID: 1.2.C).
3. For peer-to-peer discussion through educational events, including sharing ideas and networking with surgeons in various fields. One manager stated: “[The VASM’s workshop] was useful in discussion with the surgeons about how they use that information back into their health service” (Management, Public, RRMA R1: Large rural centres, 2016, ID: 1.2.G)

### VASM’s data are not always applicable to hospital type or speciality area

There was a general perception that the audit could not apply to all locations or speciality fields.

Those from smaller surgical specialties noted the audit was of little to no use in their field. These participants did not speak of the data being of unsatisfactory quality but noted that it was not applicable: “There is very little that [the VASM] publishes that is directly applicable to

paediatric surgery. For the most part I'm reading it to learn from the lessons of non-paediatric specialties" (Management, Public, RRMA M1: Capital cities, 2015, ID: 1.3.A).

VASM provides feedback to all hospitals regardless of their volume of surgical procedures. Some participants noted that the audit was of little relevance in small rural hospitals with fewer surgical procedures, minor complexity procedures and less or potentially no mortality: "I have one general surgeon and two ENT surgeons, we don't have any mortality, we don't do these sorts of operations that leads to mortality, it's sort of a non-event in the little hospitals" (Management, Public, RRMA R3: Other rural centres, 2015, ID: 1.3.B).

### ***VASM needs to produce more complete information***

While many spoke of the value of the audit's data, some stakeholders requested that the audit be more comprehensive in its output of data. This was particularly common among the management group, including chief operating officers and surgical directors. Requests to "close the hospital loop," where hospitals would be given identifiable feedback on their surgical staff, was not an uncommon request. To those stakeholders who spoke of this, it was important enough to impact their perception of the audit's data, the audit's quality and the audit's communication strategies.

Some stakeholders requested this type of change in the audit process where hospitals would be included in individualised case feedback:

We submit it to the VASM audit, we understand why, but we never get feedback because of the confidentiality aspect for the surgeon. . . . We don't get any feedback about specific cases and sometimes I think that would be helpful, but at the same time I understand why we don't. (Management, Private, RRMA M1: Capital cities, 2015, ID: 1.4.B)

Some stakeholders spoke about the need for the audit to widen further than simply closing the hospital loop. One example involved a management staff member requesting that the VASM follow recent trends to make audit data publicly available, and thus change its current qualified privilege policies:

There's going to be increasing demand to release some of the data and I think there's still time for [the VASM] and contributors to be in charge of how that happens. . . . I fear it'll be imposed anyway. So I think [the VASM] is in charge of its own destiny, but it's going to have to change slightly. I think there's going to be an increasing concentration on public outcome reporting and that'll include surgical mortality, the identification of avoidable causes. (Management, Public, RRMA R1: Large rural centres, 2017, ID: 1.4.C)

### ***Relationships with stakeholders***

The second overarching category of themes related to the VASM's relationship with stakeholders, including the methods and effectiveness of the audit's communication.

### ***VASM is perceived to have effective communication with many stakeholders, despite varying levels of engagement***

The stakeholder population perceived the audit's communication strategies to be effective. There are two main types of communication mentioned: day-to-day communication with its stakeholders, including emails, phone calls and requests for further information, and the formalised publications, data and seminars that are produced by the VASM. Both were perceived to be effective:

Often I'll email [the VASM office] and just ask a random question here and there that I've been asked by other people in my unit. It's been hugely helpful and always been good when [the VASM staff member] gets back to me quickly which is great. (Government, RRMA M1: Capital cities, 2016, ID: 2.1.A)

The audit's formalised communication strategies and data dissemination were also considered to be effective. Stakeholders were aware of the annual reports and clinical governance reports. While stakeholders reported mixed interaction with these reports, they themselves perceived them to be presented in an appropriate format.

Seminars and educational events were generally perceived to be useful, although, given a wide variety of stakeholders in attendance, they were not always viewed as relevant to the role of the stakeholder: "I'm a clinical coder, I'm not really clinical. I wouldn't say of interest but it's probably not something I would attend but maybe more so that our quality manager or even our clinician might, would be more interested in" (Health Information Related, Private, RRMA R1: Large rural centres, 2017, ID: 2.1.C).

### ***VASM could target its communications more efficiently based on the stakeholders' role***

A few stakeholders mentioned the need for more targeted information to particular subgroups. This was explained as providing more time-efficient communication while allowing relevant data to stand out among a growing number of recommendations. For example, the following stakeholder from a management position had a more mixed perception of the audit's communication and requested the need for targeted strategies to stand out among a busy professional schedule:

The health services and executive members are inundated with the information and it's sometimes difficult to determine what is relevant and what's not. I would say that the annual report that's produced by VASM is something we would normally report to our quality and improvement committee in relation to other notifications and it would depend on [an] ability to be able to read it and the time available to the individual people and how it's actually articulated in the subject line. (Management, Public, RRMA R3: Other rural centres, 2015, ID: 2.2.A)

### *VASM stakeholders have mixed perception of the relevance of their relationship with VASM*

Many participants commented that they did not engage with the VASM because they perceived it to be irrelevant to their role. This was a common theme among all types of personnel. This emerged from the data in four ways: (i) by forwarding on emails and not engaging with day to day correspondence; (ii) by not reading reports and newsletters; (iii) when explaining a limited knowledge of the VASM process and (iv) by not attending educational seminars (as described in the previous quotation). For example: “I forward [the VASM’s reports] to the surgical morbidity and mortality for people to read. In my role as quality manager, I forward them onto the appropriate doctors. Do I read it myself? No” (Management, Public, RRMA R2: Small rural centres, 2017, ID: 2.3.B).

### *Stakeholders have a mixed understanding of the structure and governance of the audit*

The participant pool reported a diverse range of their understanding of the audit process, with some stakeholders reporting that they have a very good understanding compared to those who reported a limited understanding of VASM. The variation in responses was due to several factors as explained in the previous theme and one of these factors was due to their relationship with the audit. For example, participants with higher understanding of VASM often reported being involved with the audit for several years or that their role requires increased communication with the audit management. While others only spoke about understanding their role in the audit as the person who submits the monthly report to VASM with little understanding of the larger audit process:

I put the data in [for the VASM] that I know I need to report. I have an idea of what happened and part of the process there, but I am not, [I understand the VASM] to be a black hole I guess. I put the data in and we get some reports back but in term of the actual audit process . . . (Management, Private, RRMA M2: Other metropolitan, 2016, ID: 2.4.A)

## **Discussion**

Audits are used to improve professional practice, but the range of personnel needed to maintain a health audit is large and participation at all levels of the clinical and hospital governance chain is required. This study illuminates the role the VASM plays among its hospital and government stakeholders and offers recommendations for the audit’s future improvement strategies. It also adds to the literature regarding the perceived value of clinical audits by their hospital and government stakeholders and offers a methodology for seeking feedback from a stakeholder population.

We included the quantitative component for annual trending and to give greater weighting to the qualitative results (Johnson and Onwuegbuzie, 2004). Given the small

numbers, we hesitate to make broad comments on these results. However, these data reinforce results from the qualitative analysis. Despite the low engagement across the stakeholder pool with the VASM’s written publications, there was a high perception of quality and effectiveness. There was also a low sense of “usefulness” of the audit information to the respective stakeholders’ role, which correlated with the feeling of “relevance” in the generated themes. This relates to the need to produce more relevant information to target each stakeholder group.

When the stakeholders were asked about their perception of the VASM information such as reports, case-study booklets, scientific papers and newsletters produced from the audit’s data, the overall finding indicated that the perception of the VASM as a high-quality audit provides confidence in its role in improving practice; however, a need to accommodate rural or highly specialised surgical centres was highlighted and likely applies to most health audits in the country. This concern is a recommendation that was implemented immediately after study interviews when preliminary findings were presented in the VASM report (Victorian Audit of Surgical Mortality, 2017b). This focus on rural hospitals is an important area for a clinical audit, given increased mortality rates in rural and regional geographical locations (Australian Institute of Health and Welfare, 2014).

One piece of feedback regarding the audit’s clinical findings was the capacity of management staff to request further case sensitive data to “close the loop” – an action that is currently unavailable under Qualified Privilege with the treating surgeon. Requesting a copy of findings from the audit’s peer review component to be shared with the hospital clinical governance is a debated area for the VASM management. The audit’s structure is designed as an educational rather than punitive exercise. Clinicians participating in the VASM view it as a trustworthy audit activity with strong legislation to ensure data collected are kept confidential (Victorian Audit of Surgical Mortality, 2014). The demand from hospital management for this request might be partly influenced by recommendations from the Targeting Zero report on hospital safety and quality assurance in the Victorian healthcare system (Duckett et al., 2016). Comparatively, the Victorian Cardiac Outcomes Registry is a clinical quality registry that benchmarks performance both nationally and internationally and is providing information about the clinician’s performance back to the participating hospitals as per Targeting Zero recommendations (Victorian Cardiac Outcomes Registry, 2019). In the future, VASM aims to enhance the audit loop by reporting preventable outcomes to the newly formed Victorian Perioperative Consultative Council ensuring that legal requirements of the current Qualified Privilege protection are maintained.

When we examined the relationship between the VASM management and the effectiveness of their communication with the stakeholders, there was a seemingly contradictory aspect of the results. The study findings consisted of participants reporting the VASM office team’s communication strategies to be effective, while acknowledging limited

engagement with formal reports and recommendations that were produced. We speculate that there are two possible explanations for this – either some stakeholders perceived the communication to be effective but not relevant to their role, or those who perceived the information to be relevant but did not engage with the recommendations still perceived the communication to be of “high quality,” and thus, “effective,” equating the two. The VASM management should consider this as part of its strategic plan to improve the relationship and communication with its stakeholders.

A novel finding of this study was that stakeholders within major healthcare services perceived the VASM to be unrelated to the individual’s role and that this had a subsequent impact on participants’ understanding of the VASM. This theme emerged across all 3 years of the study. While we note the diverse roles of the stakeholder population and recognise that, for many, the role of the VASM in their day to day operations is negligible, the emergence of this theme is of concern. While the audit has a clinical surgical focus and therefore is primarily applicable to surgeons, adverse events can involve hospital structures and hospital protocols. For example, in the latest VASM report, “delay issues” accounted for 19.3% of identified preventable issues between 2012 and 2017 (Victorian Audit of Surgical Mortality, 2017b). Hospital stakeholders provide a significant component of the data for the audit process and receive recommendations for improvements (Figure 1 refers). Engagement of all stakeholders will therefore be a key area for future recommendations.

### Recommendations

The data and discussion points form the following recommendations for the VASM: (i) for the audit to develop improved data sharing strategies relevant to rural or highly specialised surgical centres; (ii) for improved time efficient communication to be targeted to the stakeholder by clearly indicating the relevance of the VASM information to their role in the audit; and (iii) to develop methods to further provide feedback to hospital management and departments with greater, more individualised, feedback – “closing the loop” to influence systemic changes from the audit findings back to the health services.

### Limitations

This study is limited to the VASM program and therefore these findings are not readily transferable to other clinical audits. Our high non-response and absent to follow-up rate may indicate a skewed data sample. We attempted to sample a large and diverse portion of the stakeholder population, which limited the depth of interviews and specific themes that would emerge by focusing on specific stakeholder roles. Continuing on from this broad sweep of the stakeholder population, we recommend that another study is developed with a more targeted viewpoint consisting of further purposive sampling strategies to target specific stakeholders (Robinson, 2014). Additionally, stakeholder

roles and the implementation of the audit within these differ between the complex and diverse organisational structures of the various health services, and thus recommendations to specific stakeholder categories are difficult to generalise. Finally, the researchers worked for the VASM and worked to avoid bias by integrating quantitative Likert scores to support the qualitative data, randomising the stakeholders to be contacted, and independently co-coding all interviews. Despite these efforts, the researchers acknowledge the potential of bias when seeking feedback on an institution in which they are employed.

### Conclusions

This study explores the role the VASM plays among its stakeholders and offers three overarching recommendations for improvement strategies: produce data sharing strategies that are relevant to rural or highly specialised surgical centres, improve communication to be targeted at stakeholders and explore methods to provide feedback to hospital management with more individualised feedback. Future feedback mechanisms for the audit should focus on specific stakeholder populations for deeper analysis while using data from this study to generate survey questionnaires for quantitative trending. Finally, the VASM management recommends to their stakeholders that they have a role to play in affecting systemic and clinical practice changes when they are provided with VASM information. This can be achieved by acting upon the recommendations through internal hospital investigations or disseminating the audit information among their peer groups and management.

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### Supplemental material

Supplemental material for this article is available online.

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