

Victorian Audit of Surgical Mortality  
at the Royal Australasian College of Surgeons



**Victorian Audit of Surgical Mortality (VASM)  
First-Line Assessment  
Validation Audit  
2013 Report**

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## GRAPHS

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## **OBJECTIVE**

The objective of this audit was to examine the agreement between two independent assessors performing first-line assessments on the same case. The primary assessor was the Fellow who performed the original assessment using the standard audit process. The second, or 'validation assessor', was a random selection of first-line assessors from the relevant subspecialty and without knowledge either of the outcome of the original assessment or that they were completing a validation assessment.

## **MATERIAL AND METHODS**

A 5.6% (116) sample of closed cases (2075) was randomly selected for review. The second first-line assessments were done by a selection of paper-based first-line assessors from the relevant specialty and without knowledge either of the outcome of the original assessment or that they were completing a validation assessment.

At completion of the audit, a comparison was made of the recommendations from each assessor.

## **SCOPE**

To identify any areas of concern and differences arising from the comparison of the two validation procedures.

## **APPLICABLE TO**

All VASM mortality cases submitted between 2010-2012 that had completed the first-line assessment process and that were closed.

## **PROCEDURE**

The first phase was to select the random validation cases and prepare a data set and queries in an Access database. Three tables were designed; the source, validation and differences. The next step was to prepare a list for selecting the appropriate assessors, which were in hard copy for postage as the BAS (Bi-national audit system) is not suitable for validation. Then the original Case record and assessment forms were printed from BAS. The validation letters were written replicating the text from the database so that the validating assessor was not biased in knowing that the assessment was a validation. The letters for the first phase were sent out on 31<sup>st</sup> January 2013.

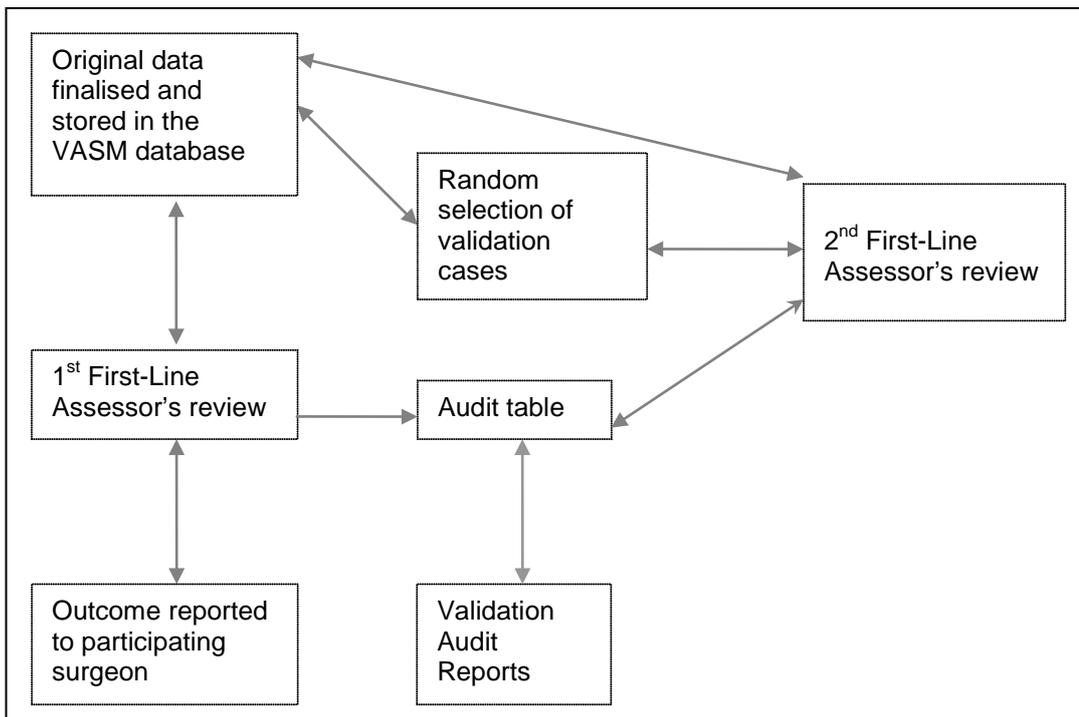
In all, 116 cases were selected out of the 2075 cases that were finalised during the period of 2010-2012 audit periods. These were sent out on 22<sup>nd</sup> April 2013. The cut-off date was the 1<sup>st</sup> June 2013 and by this date VASM had received 103 of the 116 original sample total.

The second phase was receiving the incoming assessment forms and entering them into pre-prepared tables in the validation database. By April 30<sup>th</sup> 2013 84 cases were received, and we had 16 cases from the 116 selected that were still outstanding which were re-assigned to other assessors

The third phase was the data verification of differences on the 103 cases. The data was cross referenced between the original and validation tables identifying differences that were found. All validation and original documentation will be stored securely and files will be kept for a period of seven years.

## AUDIT DIAGRAM

Black arrows indicated audit architecture checks



## AUDIT PROCEDURE RESULTS

Sample number: 2075 cases  
 Validation selection: All specialities

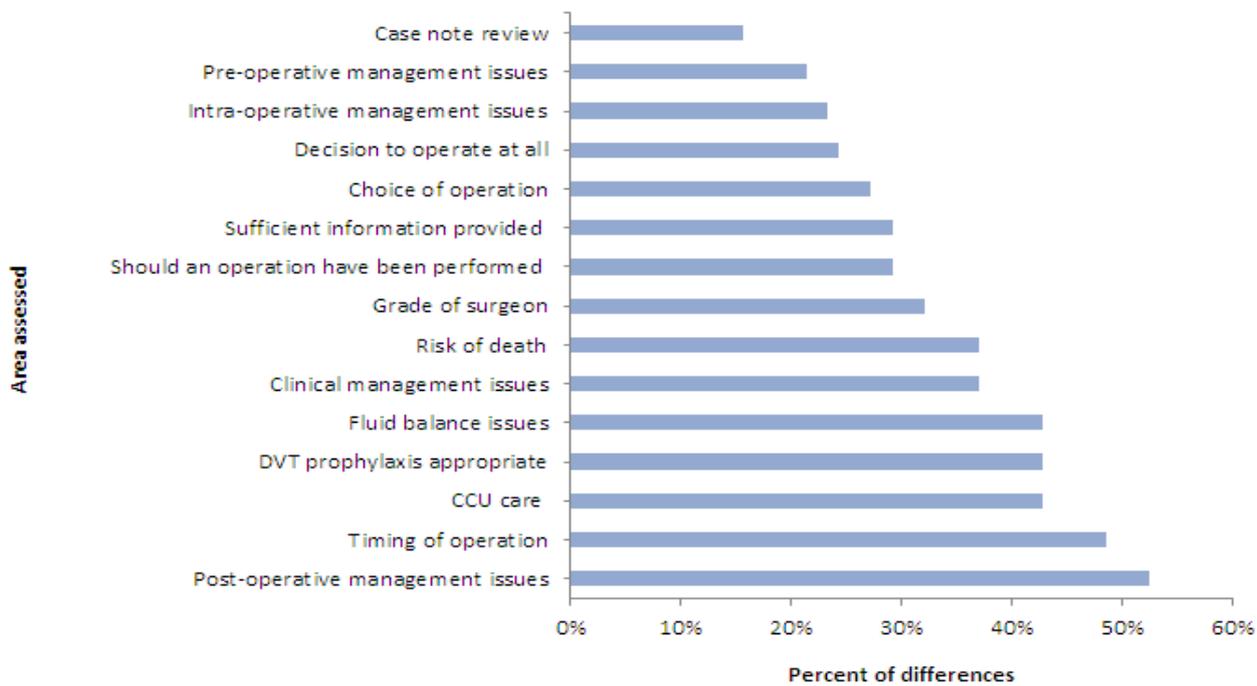
**Table 2: Specialty distribution of cases selected for review**

Speciality	Finalised cases	Validation selection n (%)
Cardiothoracic	138	7 (5%)
General Surgery	932	26 (3%)
Neurosurgery	274	6 (2%)
Oral/Maxillofacial	1	1 (100%)
Orthopaedics	421	24 (6%)
Otolaryngology	26	1 (4%)
Paediatric	14	1 (7%)
Plastic	29	4 (14%)
Urology	77	11 (14%)
Vascular	163	22 (14%)
<b>Total</b>	<b>2,075</b>	<b>103 (5%)</b>

## AUDIT REPORT RESULTS

These data points in Graph 1 below outline the questions detailed on the first-line assessment form. It shows the differences between the original and the second first-line assessments.

**Graph 1: Percentage of summary of differences in areas assessed**



Note: CCU: Critical care unit

The difference between the specialties was quite small, with a range of 11% for neurosurgery and 6% for paediatric surgery. This overall difference was 8%.

There were quite a high number of blank/missing fields on both the original and the validation fields (Tables 5,6). This means that the analysis of data is constrained. It is important that data entry quality must be improved.

The original source fields with the highest missing data was in the 'should an operation be performed' 19% (20) and 'HDU care' 19% (20) of fields.

The validation source fields with the highest missing data were also in the 'should an operation be performed' 30% (31) and 'HDU care' 27% (28) of fields.

Tables 5 and 6 provide full details on the missing fields in both samples.

## 1. Disparity between perceptions of need for 2<sup>nd</sup> line assessment (case note review)

**Table 2: Specialty distribution of variance**

Speciality	Initial Assessment	Validation Assessment
	n (%)	n (%)
Cardiothoracic	7 (5%)	1 (14%)
General Surgery	26 (3%)	7 (27%)
Neurosurgery	6 (2%)	2 (33%)
Oral/Maxillofacial	1 (100%)	0 (0%)
Orthopaedics	24 (6%)	1 (4%)
Otolaryngology	1 (4%)	0 (0%)
Paediatric	1 (7%)	0 (0%)
Plastic	4 (14%)	1 (25%)
Urology	11 (14%)	2 (18%)
Vascular	22 (14%)	2 (9%)
<b>Total</b>	<b>103 (5%)</b>	<b>16 (15%)</b>

In 16 out of 103 cases (15%) where the initial assessor felt there was no need for second-line review, the validation assessor felt a second-line review was indicated. There was no disagreement among assessors in 87 cases (85%) when the initial assessor felt a second line review was not indicated.

In five cases of disagreement the initial assessor had identified the relevant clinical issues questioned by the validation assessor but felt a second-line review would not add to the outcome.

In three cases of disagreement the validation assessor believed that there was insufficient information to come to a conclusion, which was the reason for the second-line assessment referral.

In eight cases of disagreement there were issues raised. The main issues identified were predominately areas of consideration such as delay in diagnosis, delay to surgery, delay to transfer to tertiary hospital, delay to operate, pancreatitis management, unclear diagnosis, antibiotic regime and the form being incomplete and completed by a surgical trainee. There was one area of concern identified, which was the experience of the consultant operating.

## 2. Adequacy of information provided by treating surgeon

In 30 cases (29%) the adequacy of information provided by the treating surgeon was raised by the primary assessor but the validation assessor felt the information provided was sufficient to draw conclusions.

Note: there were no blank fields in the original assessment and one blank field in the validation assessment.

## 3. Should an operation have been performed

In 30 cases (29%) the validation assessor disagreed on the appropriateness of the operative procedure.

Note: there were 20 blank fields in the original assessment and 31 blank fields in the validation assessment. This field had the highest missing data of all the fields on the form.

## 4. Preoperative management issues

In 22 cases (21%) the validation assessor disagreed with the initial assessment of adequacy of the preoperative management, based on the information submitted by the surgeon.

Note: there were five blank fields in the original assessment and 11 blank fields in the validation assessment.

## 5. Intraoperative management

In 24 cases (23%) the validation assessor disagreed with the adequacy of the intraoperative management.

Note: there were six blank fields in the original assessment and 12 blank fields in the validation assessment.

## 6. Postoperative management issues

In 54 cases (52%) there were differences in views between postoperative management.

Note: there were six blank fields in the original assessment and 13 blank fields in the validation assessment.

## **7. Decision to operate at all**

In 25 (24%) case there was a difference of opinion regarding the decision to operate.

Note: there were six blank fields in the original assessment and 12 blank fields in the validation assessment.

## **8. Choice of operation**

In 28 (27%) case there was a difference of opinion regarding the choice of operation.

Note: there were five blank fields in the original assessment and 10 blank fields in the validation assessment.

## **9. Timing of operation**

In 50 (49%) case there was a difference of opinion regarding the timing of surgery.

Note: there were five blank fields in the original assessment and 12 blank fields in the validation assessment.

## **10. Grade of surgeon**

In 33 cases (32%) the validation assessor deemed the grade of the surgeon operating as an issue based on the information submitted by the surgeon. This was due to inadequate communication between the trainee and the consultant.

Note: there were six blank fields in the original assessment and 11 blank fields in the validation assessment.

## **11. Risk of death**

The overall perception of the risk of the patient death was the most common difference between primary and validation assessors. In 38 (37%) cases there was disagreement. However, when these differences were reviewed the differences were slight. (e.g. Small vs. minimal, moderate vs. considerable).

Note: there was one blank field in the original assessment and two blank fields in the validation assessment.

This field had the least missing data in all of the fields on the form.

## **12. Use of critical care support**

Differences in opinion on the value of critical care support were frequent occurring in 44 (43%) cases.

Issues identified included the utilisation of Intensive Care Unit (ICU) or High Dependency Unit (HDU). Deep Vein Thrombosis (DVT) prophylaxis and fluid balance were also amalgamated across the data points as they were very similar in their meaning and value.

Note: there were 20 blank fields in the original assessment and 28 blank fields in the validation assessment for HDU this was the largest blank field out of all the critical care support questions.

## **13. Area of consideration, concern or adverse event**

In regard to clinical outcomes there were 20 (19%) instances of differences noted. Primary and validation assessors came to the same conclusions in 12 (60%) cases. However there were some variations in opinion in regard to the degree of criticism of 'area of considerations' in 8 (40%) cases.

It is important to note that in the entire sample (n= 103) compared there was not one case where there was any variation in the adverse events.

## **CONCLUSION**

This validation audit was undertaken to give some perspective on intra-assessor variation between surgeons reviewing cases reported to VASM. The validation process of 103 peer reviews with 85% matching assessments reassures us that the assessment process is generally functioning appropriately. The assessment process itself involves some degree of subjectivity so 100% agreement between observers is not expected.

## **RECOMMENDATIONS**

- Continue to support the current review process.
- Encourage assessors to utilise the VASM assessment guidelines
- Carefully evaluate the questions related to use of critical care services and DVT prophylaxis and look at changes that will provide clearer outcomes.
- Make sure that all fields on the form have been completed and there are no blank fields (move towards compulsory electronic data submission).
- Develop a validation assessment method for 2<sup>nd</sup> line assessments.
- Develop assessor peer-review process workshop to assist in completing assessments.
- Repeat this review in two years.

**Table 3: Summary of Differences between reviewers**

Cases recorded here are the differences between initial and validation assessment.

Specialty											
Areas assessed	Cardiothoracic surgery	General surgery	Neurosurgery	Oral/ Maxillofacial	Orthopaedic surgery	Otolaryngology Head and Neck	Paediatric surgery	Plastic surgery	Urology	Vascular surgery	Total
Case review	1	7	2	0	1	0	0	1	2	2	16
Sufficient information provided	1	14	2	0	5	1	1	1	2	3	30
Should an operation have been performed	1	11	2	0	5	0	0	1	2	8	30
Preoperative management issues	1	8	2	0	4	0	0	0	3	4	22
Intraoperative management issues	4	8	0	0	6	0	0	2	1	3	24
Postoperative management issues	6	14	3	1	8	0	1	2	8	11	54
Decision to operate at all	1	9	2	0	5	0	0	0	3	5	25
Choice of operation	2	8	3	1	4	0	0	1	3	6	28
Timing of operation	3	10	6	1	9	1	1	3	3	10	50
Grade of surgeon	5	7	1	0	5	0	1	1	7	6	33
Risk of death	3	6	4	0	10	1	0	2	4	8	38
HDU care	3	8	3	0	8	1	0	2	5	7	37
ICU care	3	17	3	1	13	0	0	2	7	6	52
DVT Prophylaxis	4	9	4	1	9	1	0	2	4	10	44
Fluid balance issue	6	9	4	0	7	1	0	2	4	11	44
Clinical management issues	5	8	3	0	6	1	0	2	4	10	39
<b>Total differences</b>	<b>49</b>	<b>153</b>	<b>44</b>	<b>5</b>	<b>105</b>	<b>7</b>	<b>4</b>	<b>24</b>	<b>62</b>	<b>110</b>	<b>566</b>

**Table 4: Percentage of differences between reviewers**

Cases recorded here are the percentage of differences between initial and validation assessment.

Specialty	Cardiothoracic surgery	General surgery	Neurosurgery	Oral/ Maxillofacial	Orthopaedic surgery	Otolaryngology Head and Neck	Paediatric surgery	Plastic surgery	Urology	Vascular surgery	Total
<b>Total cases (n)</b>	7	26	6	1	24	1	1	4	11	22	<b>103</b>
<b>Fields checked (n)</b>	469	1742	402	67	1608	67	67	268	737	1474	<b>6901</b>
<b>Differences (n)</b>	49	153	44	5	105	7	4	24	62	110	<b>566</b>
<b>Differences (%)</b>	<b>10</b>	<b>9</b>	<b>11</b>	<b>7</b>	<b>7</b>	<b>10</b>	<b>6</b>	<b>9</b>	<b>8</b>	<b>7</b>	<b>8</b>

**Table 5: Number of blank fields in the original source form fields**

Cases recorded here are the numbers of blank fields in the original assessment.

	Cardiothoracic surgery	General surgery	Neurosurgery	Oral/ Maxillofacial	Orthopaedic surgery	Otolaryngology Head and Neck	Paediatric surgery	Plastic surgery	Urology	Vascular surgery	Total
Case review	0	0	0	0	0	0	0	0	0	0	0
Sufficient information provided	0	0	0	0	0	0	0	0	0	0	0
Should an operation have been performed	0	8	0	0	8	1	0	0	2	1	20
Preoperative management issues	0	0	1	0	3	0	0	0	0	1	5
Intraoperative management issues	0	1	1	0	3	0	0	0	0	1	6
Postoperative management issues	0	1	1	0	3	0	0	0	0	1	6
Decision to operate at all	0	1	1	0	3	0	0	0	0	1	6
Choice of operation	0	0	1	0	3	0	0	0	0	1	5
Timing of operation	0	0	1	0	3	0	0	0	0	1	5
Grade of surgeon	0	1	1	0	3	0	0	0	0	1	6
Risk of death	0	0	1	0	0	0	0	0	0	0	1
HDU care	0	11	1	0	2	0	0	1	0	5	20
ICU care	0	1	0	0	1	0	0	0	0	0	2
DVT Prophylaxis	0	0	0	0	2	0	0	0	1	0	3
Fluid balance issue	0	0	0	0	1	0	0	0	0	0	1
Clinical management issues	0	0	0	0	0	0	0	0	0	0	0
<b>Total null fields</b>	<b>0</b>	<b>24</b>	<b>9</b>	<b>0</b>	<b>35</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>13</b>	<b>86</b>

**Table 6: Number of blank fields in the validation source form fields**

Cases recorded here are the numbers of blank fields in the validation assessment.

	Cardiothoracic surgery	General surgery	Neurosurgery	Oral/ Maxillofacial	Orthopaedic surgery	Otolaryngology Head and Neck	Paediatric surgery	Plastic surgery	Urology	Vascular surgery	Total
Case review	0	0	0	0	0	0	0	0	0	0	0
Sufficient information provided	0	1	0	0	0	0	0	0	0	0	1
Should an operation have been performed	1	9	0	0	9	1	0	3	6	2	31
Preoperative management issues	0	6	1	0	0	0	0	0	1	3	11
Intraoperative management issues	0	7	1	0	0	0	0	0	2	2	12
Postoperative management issues	0	7	1	0	1	0	0	0	2	2	13
Decision to operate at all	0	7	1	0	0	0	0	0	1	3	12
Choice of operation	0	7	1	0	0	0	0	0	1	1	10
Timing of operation	0	7	1	0	0	0	0	0	2	2	12
Grade of surgeon	0	7	1	0	0	0	0	0	2	1	11
Risk of death	0	1	0	0	0	0	0	0	0	1	2
HDU care	2	15	3	0	1	0	0	2	1	4	28
ICU care	0	2	0	0	2	0	0	2	0	2	8
DVT Prophylaxis	0	2	2	0	0	0	0	0	1	1	6
Fluid balance issue	0	2	1	0	0	0	0	0	0	1	4
Clinical management issues	0	0	0	0	0	0	0	0	0	1	1
<b>Total null fields</b>	<b>3</b>	<b>80</b>	<b>13</b>	<b>0</b>	<b>13</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>19</b>	<b>26</b>	<b>162</b>

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