



VASM

Victorian Audit of Surgical Mortality

Interim Report
to Hospitals





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Chairman's report

The death of a patient can be a learning experience.

Our first annual report, released in July, presented the results from the first four months of audit activity (January to April 2008). The report emphasised our fledging status and principle goal of recruitment to the program. At the time of reporting we had recruited 437 Fellows (46%) to participate. In the five months to the end of September this has risen to 589, or 62% of Victorian Fellows. This incremental change is positive but 22% of Fellows have yet to commit to the audit process.

Hospital enrolment has also risen over the same period. At the end of April 2008, 21 hospitals had agreed to participate and were reporting deaths to VASM. At the end of September, 75 (60%) of the 92 public hospitals known to perform surgery have agreed to participate. Three of these 75 hospitals are yet to commence notification of deaths.

The number of deaths available for review has increased tenfold from the end of April to September (37 to 370). The numbers available are still small to preclude meaningful analysis of trends.

We would like to thank those who are actively participating in the audit and those who give up additional time to complete first- and second-line assessments. However despite 62% of Fellows agreeing to participate, actual participation as measured by the return rate of case record forms is a disappointing 40%. This return rate is half what the other states are experiencing!

I am keen to receive any feedback on why Victorian Fellows seem unable to match the performance of their colleagues in other states. We are aware that Victorian Privacy Legislation does impose a restriction on providing the actual name of deceased patients. Is this a factor in our poor return rate?

We would also like to acknowledge the cooperation of the quality and health information management departments in all participating hospitals.

Our management committee has been very supportive and provided good advice and many constructive ideas. VASM continues to work closely with the Victorian Surgical Consultative Council (VSCC) to monitor, analyse and report trends associated with potentially preventable surgical mortality.

It is difficult to ensure 100% objectivity in evaluation of processes like patient care, which are still liberally sprinkled with subjectivity. We have developed broad guidelines to give assessors some baseline for the standard of care they might expect. Our next task is to look at quality control in completion of case record forms and first and second line assessments. In the New Year we will conduct a review of a random sample of completed cases.

It is the VASM staff that make all this possible. Their attention to detail and adherence to protocol is the solid foundation on which the audit is built. With their help and the support we receive from many others I can only be confident about the future.

A handwritten signature in black ink, appearing to read 'Colin Russell'.

Colin Russell
VASM Chairman



Executive summary

The Victorian Audit of Surgical Mortality (VASM) was established in May 2007 to promote further improvement in surgical care in Victoria. VASM became operational in December 2007. This report represents data collected to the end of September 2008.

Of the 92 public hospitals known to perform elective surgery in Victoria only 17 (18%) hospitals have yet to agree to participate.

By the end of September, 62% of Victorian Fellows had agreed to participate. Only 7% of 955 Fellows have refused to participate, and another 9% have informed us that they have ceased clinical practice. This leaves some 22% of Fellows who have yet to respond to our invitations.

VASM has received 370 notifications of death from participating hospitals. We have only as yet received completed case record forms on 147 (40%) of these 370 cases. The full audit process, including first- and second-line assessments, has been completed on 76 (52%) of the 147. We therefore only have clinical information on 147 deaths and the outcomes of peer assessment on 76. The results presented are a reflection of those cases.

Completion of case record forms providing clinical information on events leading to death is pivotal to the success of the audit process. Currently the return rate of case record forms from Victorian surgeons is a disappointing 40%. Other states are reporting return rates around 80%.

We are pleased to report that the case record forms are generally completed by the consultant and returned promptly. We have been impressed with the diligence of first- and second-line assessors. However individual fields in the case record forms are sometimes left blank when they should be completed.

In this small sample of 76 cases, the assessors have concluded that death was a direct result of the disease processes involved and no issues of patient management were raised in the majority of cases. Issues of patient management were suggested in 19 (25%) instances. There were 13 areas of consideration, 4 areas of concern and 2 adverse events recorded. The adequacy of preoperative investigations and intensive care management were facets of care to draw comment. In the context of individual deaths, assessors felt these probably did not contribute to the final outcome. These assessments have been directly fed back to the treating surgeon. No surgeon receiving such feedback has indicated dissatisfaction with the assessment.

The mean age of all deaths was at the elderly end of the spectrum (70 to 80), the mean ASA grade was greater than 3 and 87% of deaths occurred in patients admitted as emergencies for acute problems. This supports the view that the majority of deaths were entirely due to the disease processes involved.

Recommendations

- Seek reasons for poor return rate of case record forms and improve true participation by surgeons
- Continue to work closely with Victorian Surgical Consultative Council
- Develop VASM public information packs
- Develop an electronic interface to allow Fellows to complete assessments online
- Facilitate communication and information sharing with other state mortality audits
- Establish a facility to perform interstate first- and second-line assessments where local issues might prejudice outcomes
- Facilitate availability of Coroner's reports to VASM through liaison with the Coroner's Court of Victoria



Background

The Victorian Audit of Surgical Mortality is part of the Australian and New Zealand Audit of Surgical Mortality (ANZASM), a bi-national network of regionally-based audits of surgical mortality that aim to ensure the highest standard of safe and comprehensive surgical care.

Objectives

The objective of the audit is '*peer review of all deaths associated with surgical care*'.

This includes:

- Deaths that occur in hospital following a surgical procedure
- Deaths that occur in hospital whilst under the care of a surgeon, even though no procedure was performed

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.

The audit process is designed to highlight system and process errors. It is intended as an educational rather than a punitive exercise.

Structure and Governance

The audit is managed by the Research, Audit and Academic Surgery (RAAS) Division of the Royal Australasian College of Surgeons (the College) and is supported and funded by state governments. ANZASM oversees the implementation and standardisation of each regional audit. This is to ensure consistency of the processes associated with the audit and its governance structure across all of the jurisdictions involved.

Participation by surgeons is voluntary; however, involvement in a peer-reviewed surgical audit is an annual requirement of the College's Continuing Professional Development (CPD) program. Participation in VASM provides points towards the CPD program.

The project has been funded by the Statewide Quality Branch of the Victorian Department of Human Services (DHS). VASM works closely with the Victorian Surgical Consultative Council (VSCC) and VASM provides reports to the ANZASM, VSCC, hospitals and the DHS.

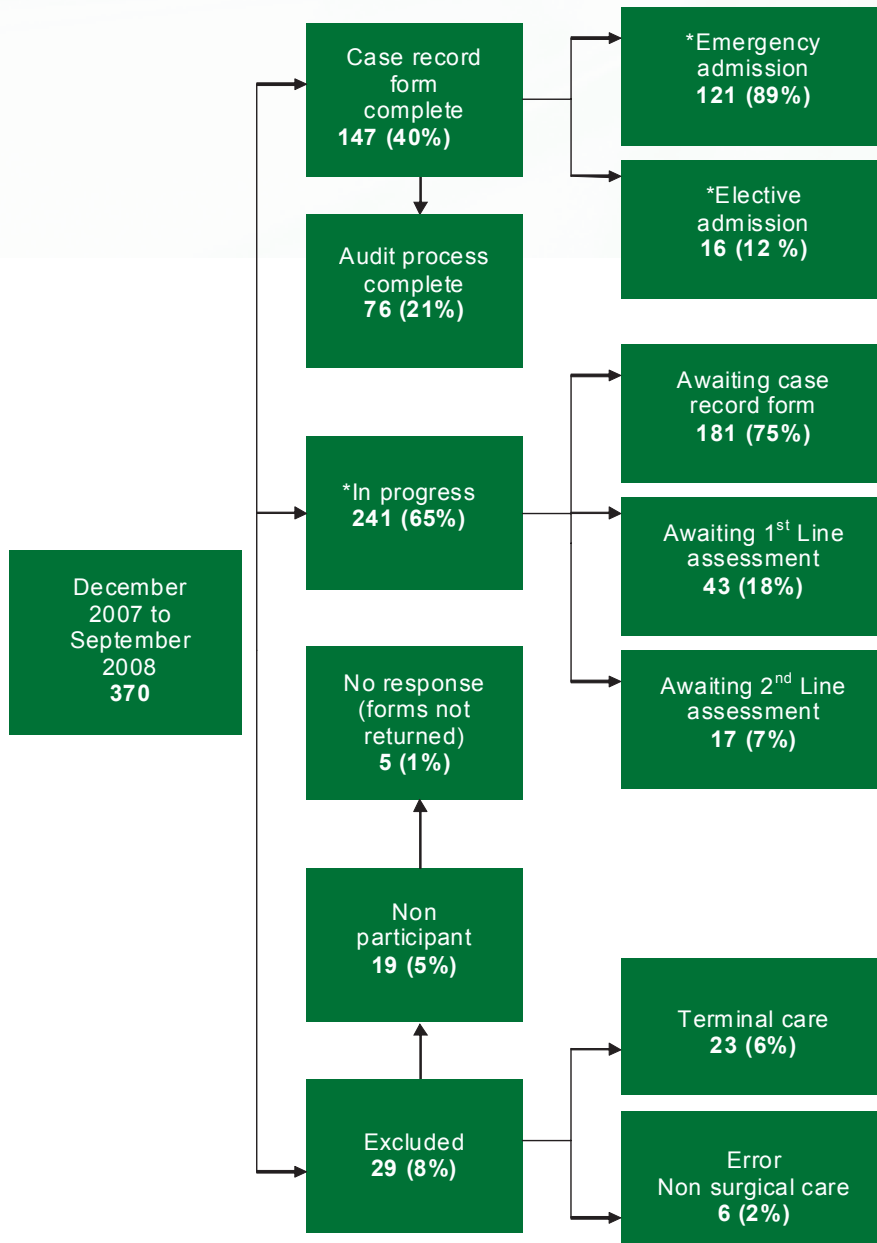
The VSCC was established by the state government in 2001 to review causes of avoidable mortality and morbidity associated with surgery and to provide feedback to the medical profession on any systemic issues identified. VASM staff will inform the VSCC of trends in surgical mortality and assist with the development of processes to enable the surgical community and healthcare providers to address system issues.

The VSCC will be forwarded de-identified individual reports and annual aggregated reports from VASM which summarise all cases reviewed. The VSCC will inform the surgical community about important issues arising out of the collection and analysis of mortality and morbidity data. Along with the VSCC, VASM aims to support further improvements in patient care in Victoria.



Results

Figure 1: Synopsis of results since commencement of audit



Note*: Admission status (elective/emergency) missing data=10

There is an overlap for "In progress" and the "Case record from complete" categories as these encompass:

- case record forms awaiting completion
- forms completed but awaiting first or second line assessment

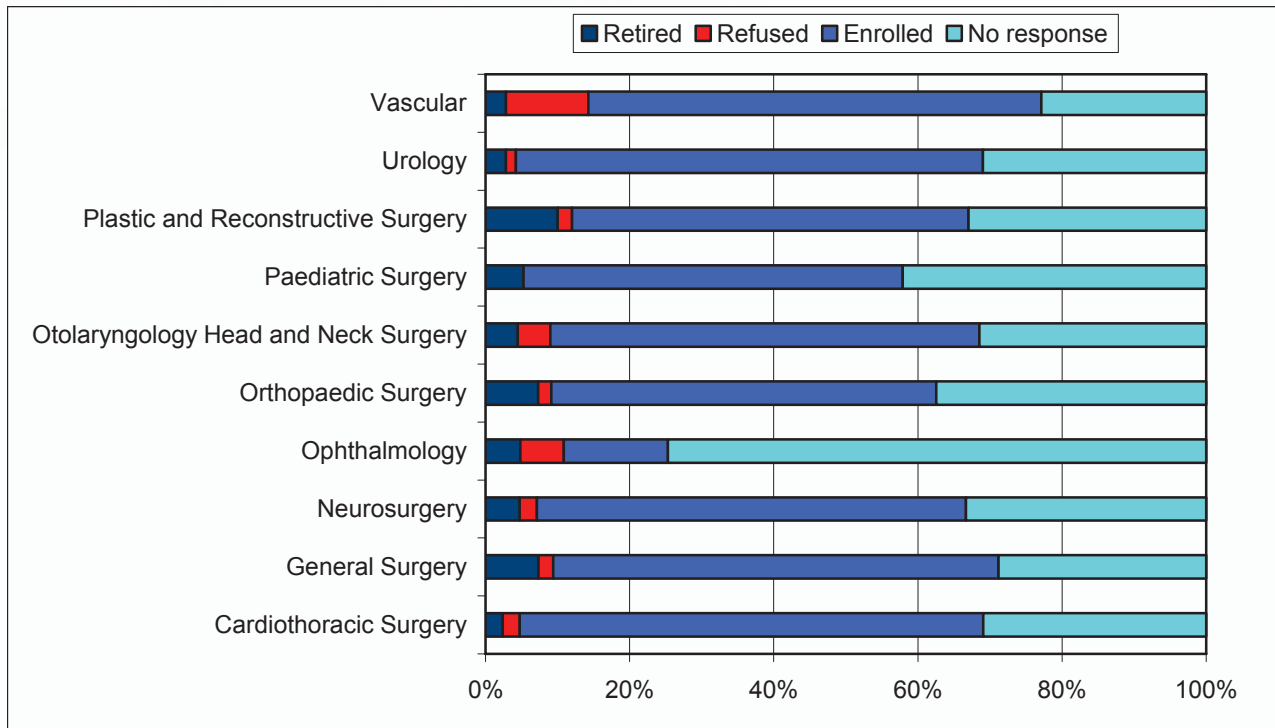
Comment

- By the end of September 2008, VASM had received 370 notifications of death. In 147 of these 370 deaths (40%) a case record form had been completed and returned to us. The full assessment (peer review) process has been completed on 76 (21%) of these 370 deaths.
- In total, 23 of 370 deaths (6%) were associated with admissions for terminal care.
- In 6 cases (2%) the deaths had been wrongly attributed to a surgical unit.



Participation by Fellows

Figure 2: Participation of Victorian surgeons by specialty (n=955)



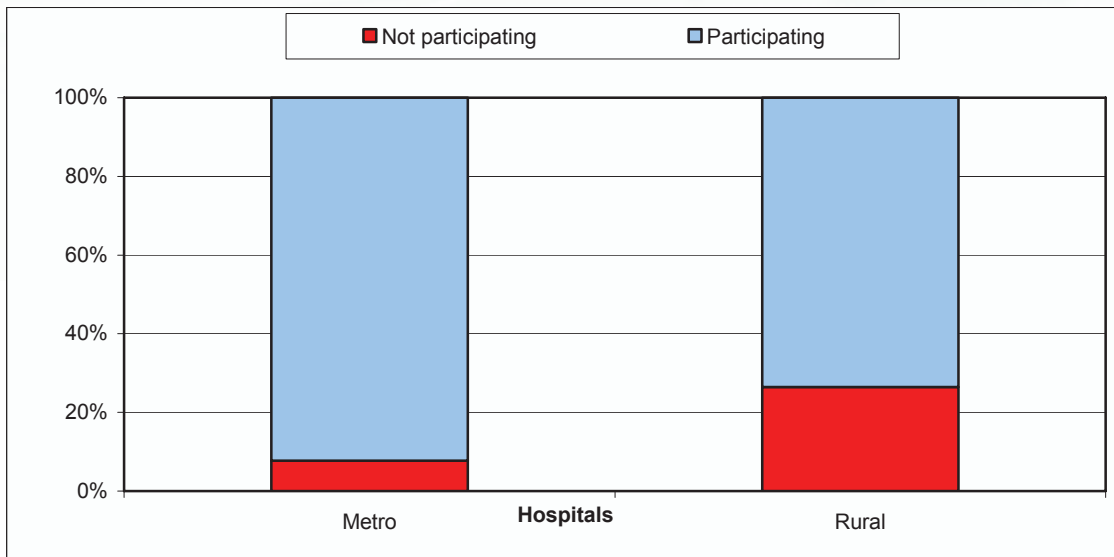
Comment

- Victorian Fellows' agreement to participate by specialty shows variation in acceptance of the program.
- By the end of September 2008, 589 of 955 surgeons (62%) had notified VASM of their intention to participate.
- Only 69 (7%) of surgeons have stated they will not participate. Another 88 (9%) who have ceased clinical practice also declined to participate. A number of these 88 have however offered their services as assessors.
- This means 209 surgeons (22%) are yet to communicate their intentions regarding participation, despite numerous invitations.
- Of the 955 surgeons, 305 (32%) have agreed to become first-line assessors and 332 (35%) to become second-line assessors.



Hospital Participation

Figure 3: Participation rate by hospital type

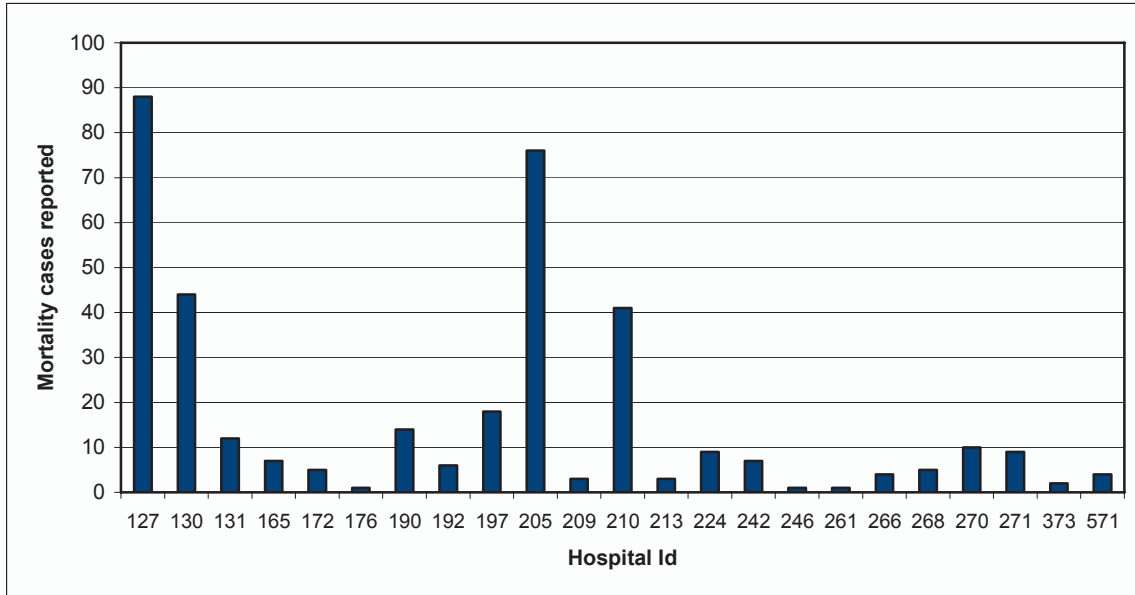


Comment

- Participation of hospitals providing surgical services continues to increase.

Notifications of Death

Figure 4: Notifications of death by hospital (n=370)

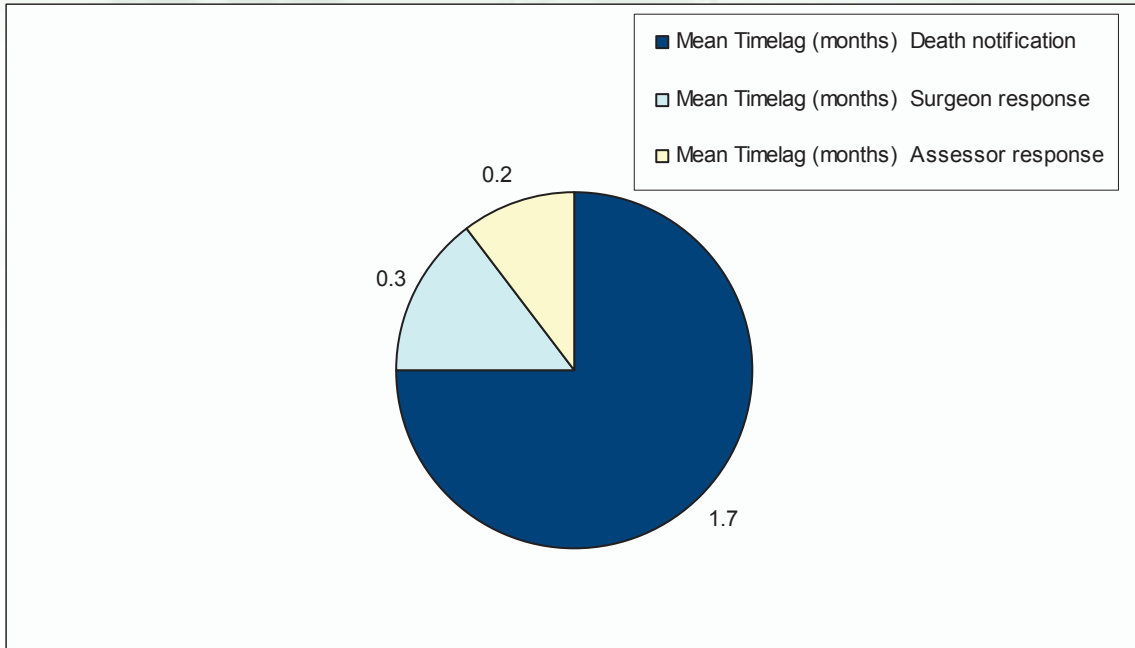


Comment:

- This indicates the number of deaths reported by individual hospitals over the period December 07 to September 08.
- The actual number of deaths, at this point in time, is an indicator of the length of time an individual hospital has been reporting deaths to VASM rather than the actual rate of death within a hospital.



Figure 5: Time taken for individual facets of the audit process (n=76)

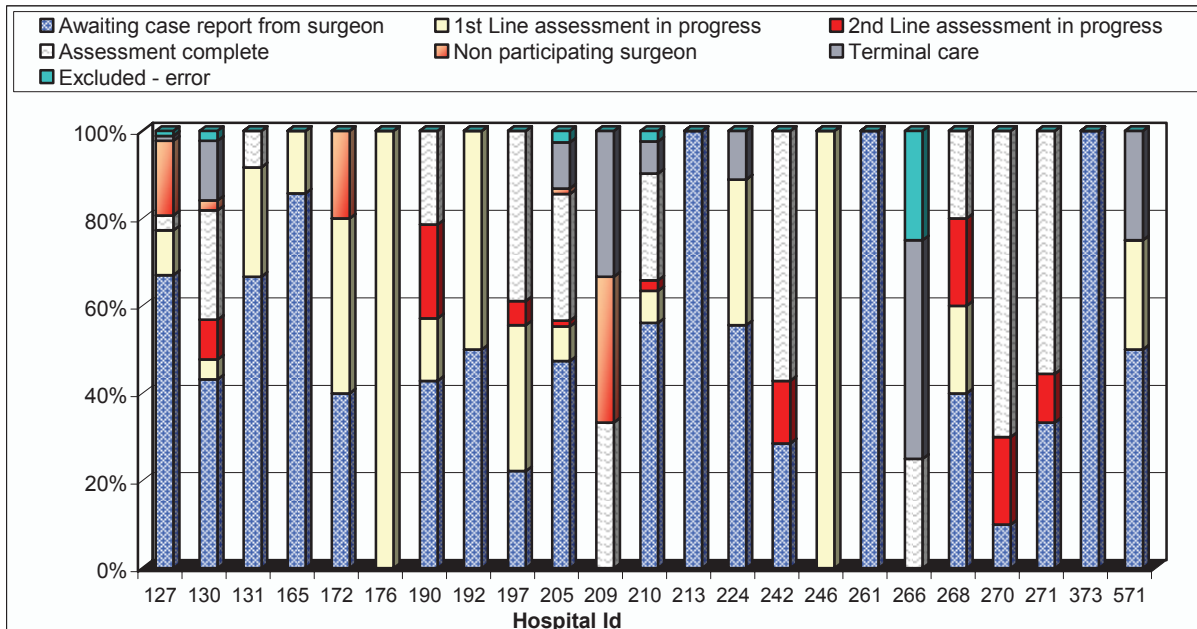


Comment:

- The major time lag (1.7 months) occurs between death and reporting to VASM.

Case Status

Figure 6: Status of audit process by hospital (n=370)



Comment:

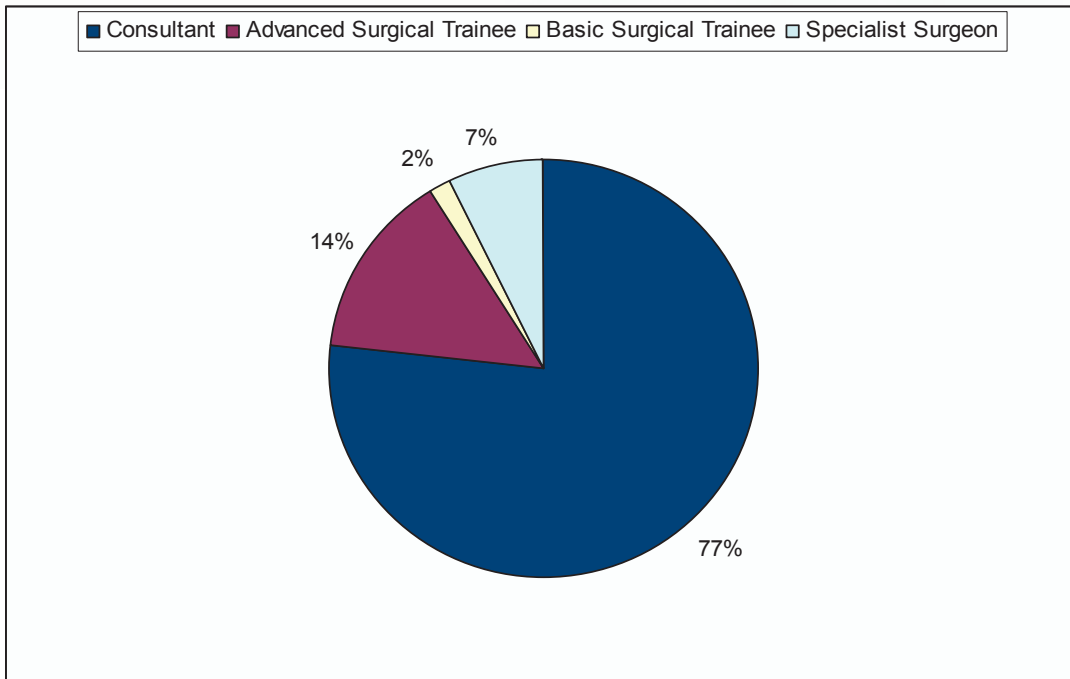
- This indicates the status of the audit process for cases notified by individual hospitals as of the end of September 2008.
- It provides a snapshot of the number of second-line assessments and the participation rate of surgeons in individual hospitals.



- The non-participating surgeon group includes those who have been explicit about their intentions not to participate and those who, after six months, have failed to return any clinical information in the Case Record Form sent directly to them.

Completion of Case Record Forms

Figure 7: Seniority of surgeons completing the Case Record Forms (n=147)



Note: Missing data n=9.

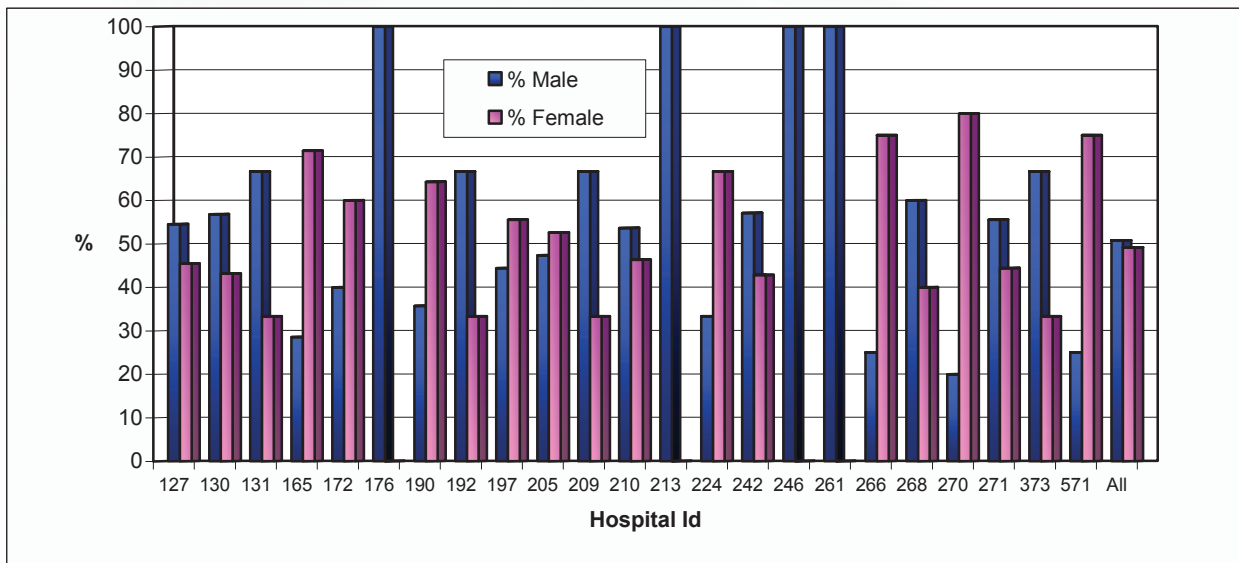
Comment:

- This indicates the majority of Case Record Forms were completed by a consultant.



Patient Demographics

Figure 8: Gender distribution of deceased as notified by hospitals (n=370)

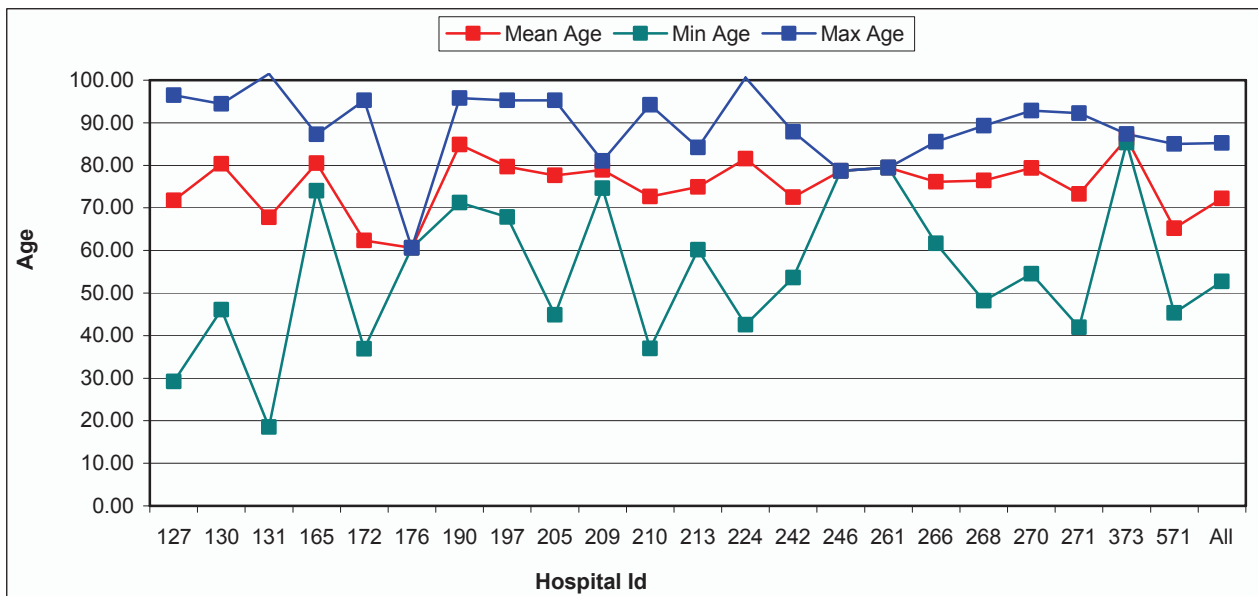


Note: Missing data n=9.

Comment:

- No inferences are made.

Figure 9: Age distribution of deceased as notified by hospitals (n=370)



Note: Missing data n=6.

Comment:

- One hospital has not been included in this graph as the age profile would immediately identify them.
- The mean age of deceased patients is 75 and is at the older end of the age spectrum.

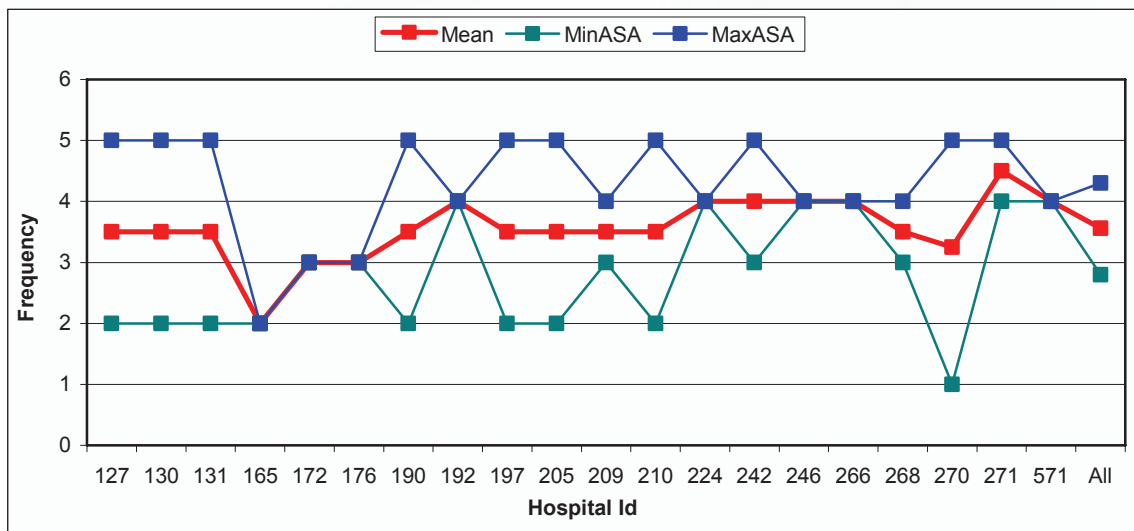


ASA Status of Patients

ASA characteristics

1. A normal healthy patient
2. A patient with mild systemic disease and no functional limitation
3. A patient with moderate systemic disease and definite functional limitation
4. A patient with severe systemic disease that is a constant threat to life
5. A moribund patient unlikely to survive 24 hours, with or without an operation
6. A brain dead patient for organ donation

Figure 10: ASA grades of deceased as notified by hospitals (n=147)



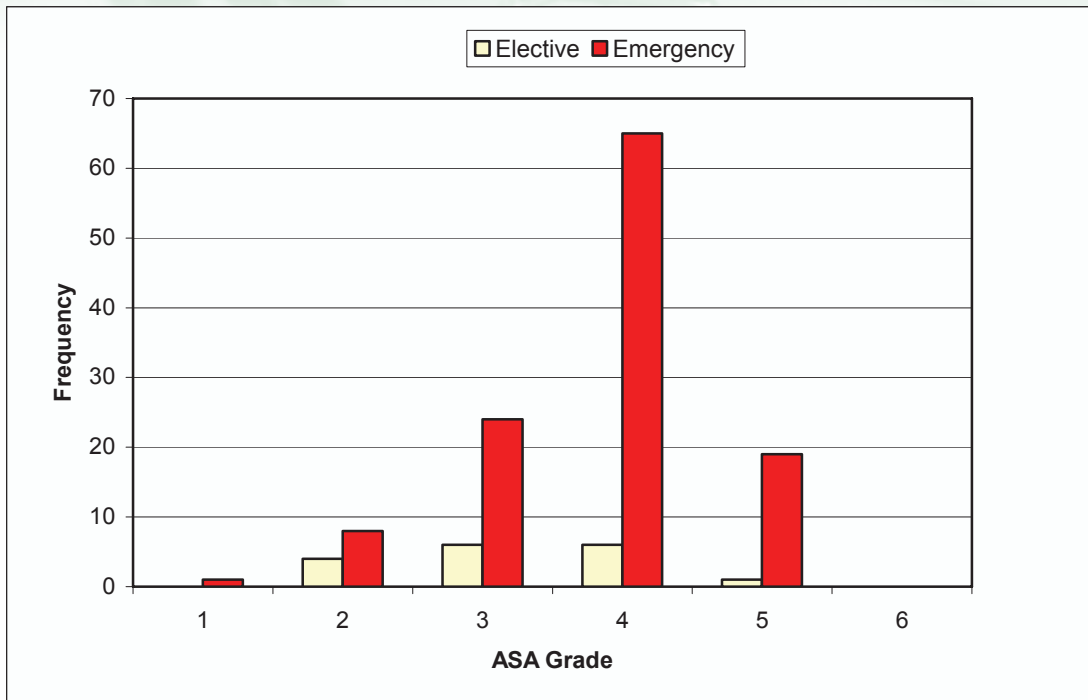
Note: Missing data n=6.

Comments

- The high mean of ASA grades suggest that most deaths occurred in patients with significant co-morbidity.



Figure 11: ASA grades by admission status - elective vs. emergency (n=147)



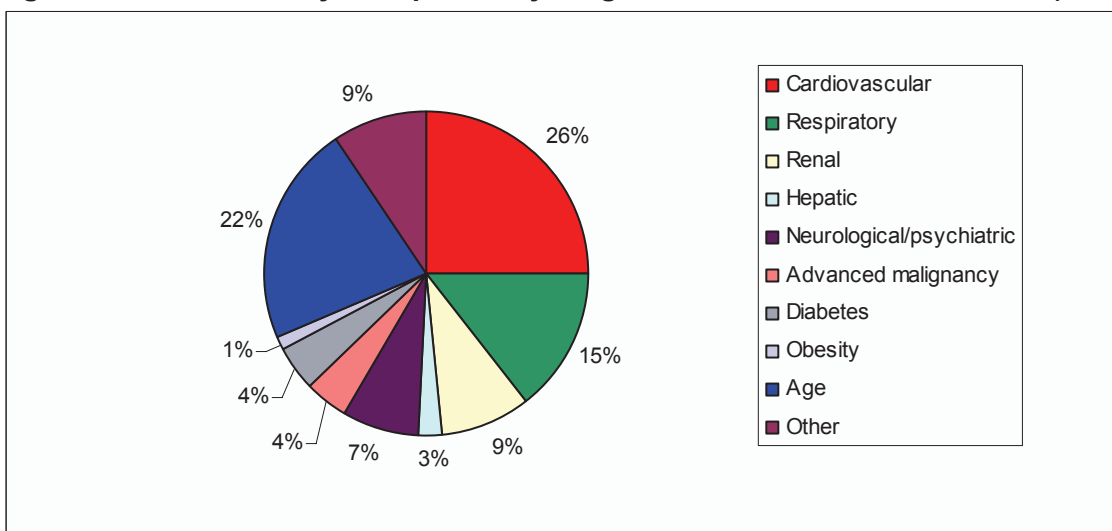
Note: Missing data n=13.

Comment

- This indicates that most deaths occurred in patients admitted as emergencies with acute conditions (87%) and in patients with significant co-morbidity.

Co-morbidities

Figure 12: Co-morbidity as reported by surgeons in the Case Record Form (n=147)



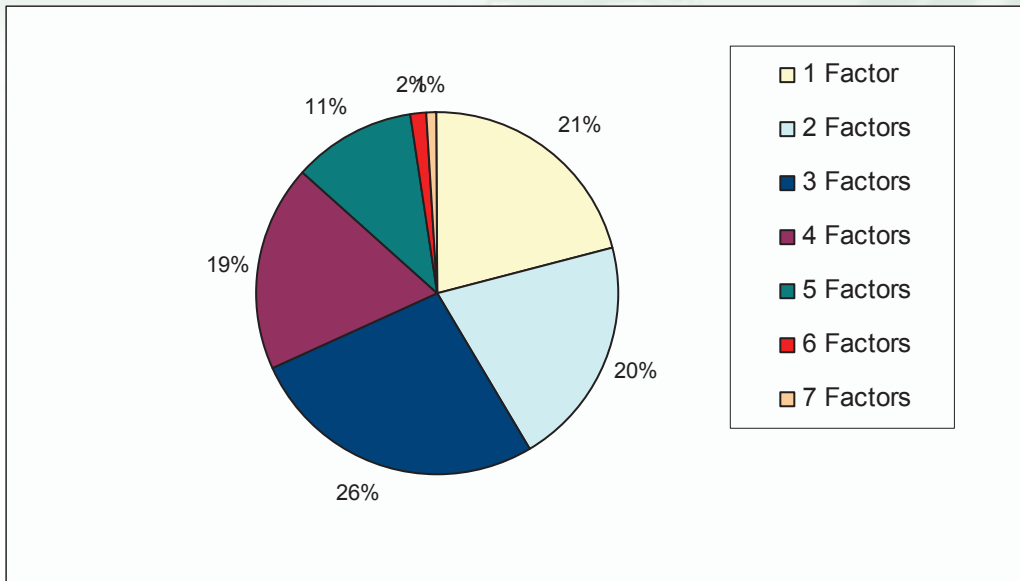
Note: Missing data n=8.

Comment

- Age, cardiovascular and respiratory problems are the most common co-morbidities in this series of surgical deaths.



Figure 13: Frequency of multiple co-morbidities (n=147)



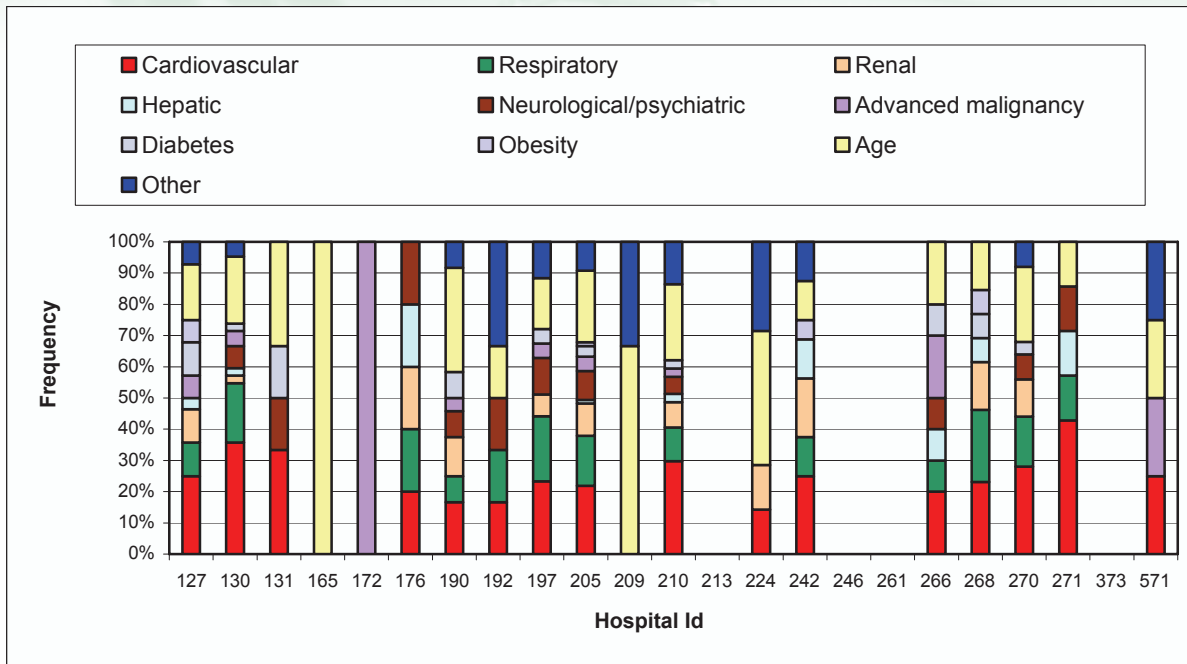
Note: Missing data n=8.

Comment

- Co-morbidity was listed as an associated factor in all cases. Two thirds of deaths were associated with more than one risk factor (co-morbidity).



Figure 14: Specifics of co-morbidity by hospital (n=147)



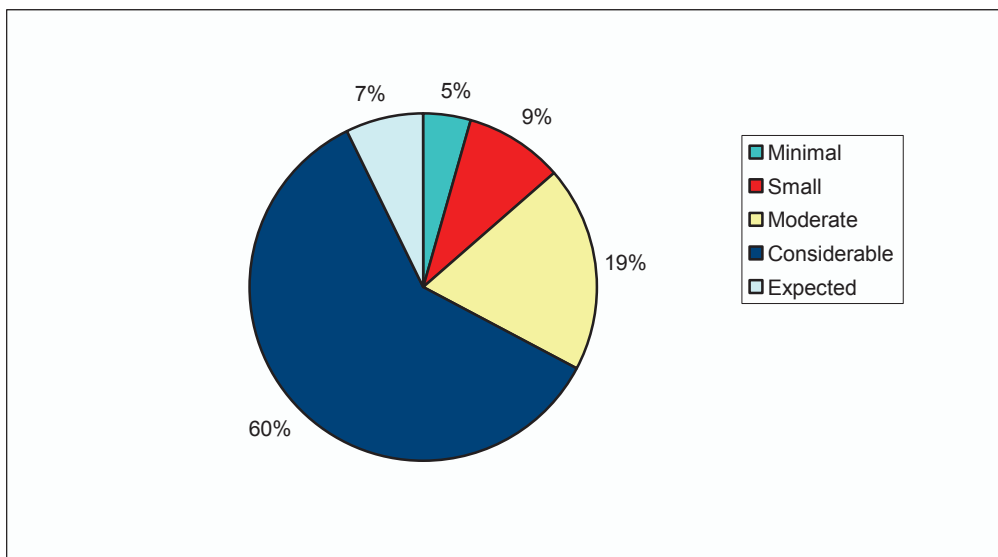
Note: Missing data n=8.

Comment

- This figure shows the co-morbidity profile of surgical deaths in individual hospitals.
- The profile appears similar across hospitals with age, cardiovascular and respiratory problems as the most common co-morbidities in this series of surgical deaths.

Risk Status

Figure 15: Surgeons' perception of overall risk of death (n=146)



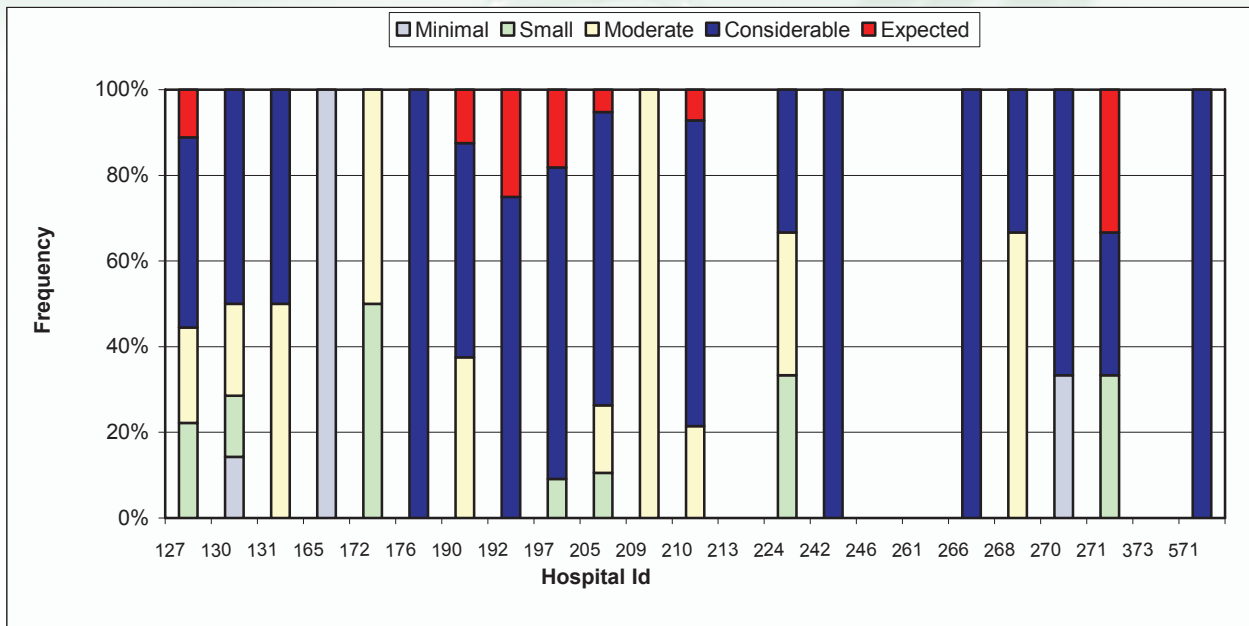
Note: Missing data n=37.

Comment

- Clinicians' perception of risk of death was high in the majority of cases (86%).



Figure 16: Surgeons' perception of overall risk of death by hospital (n=146)



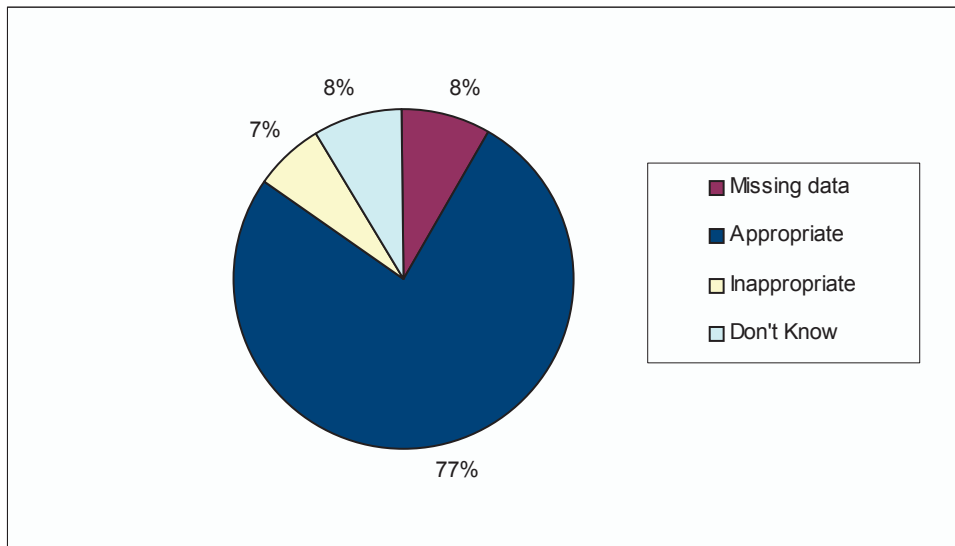
Note: Missing data n=37.

Comment

- No inferences are made.

Patient Management

Figure 17: DVT Prophylaxis (n=59)



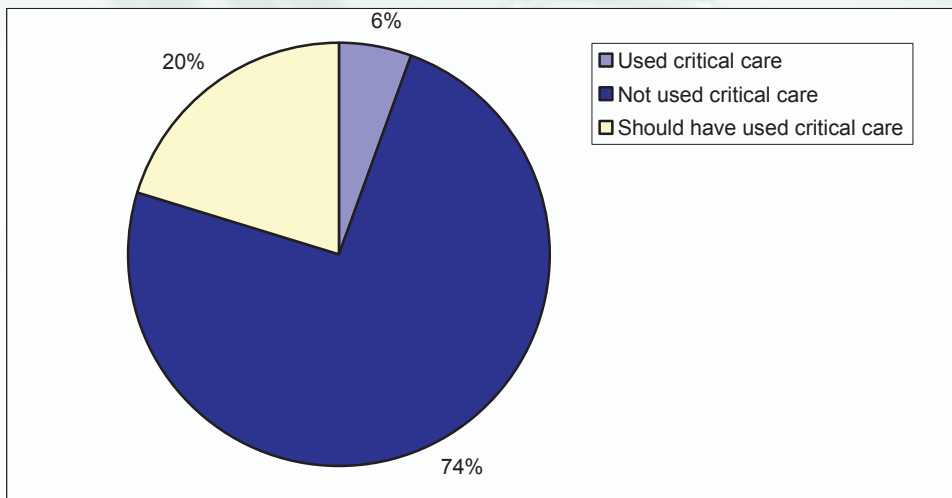
Note: Missing data n=5.

Comment

Of the 76 cases that have completed the peer review process, 59 (77%) have reported use of DVT prophylaxis. DVT prophylaxis was assessed as inappropriate in only 4 (7%) of these 59 cases.



Figure 18: Use of critical care support

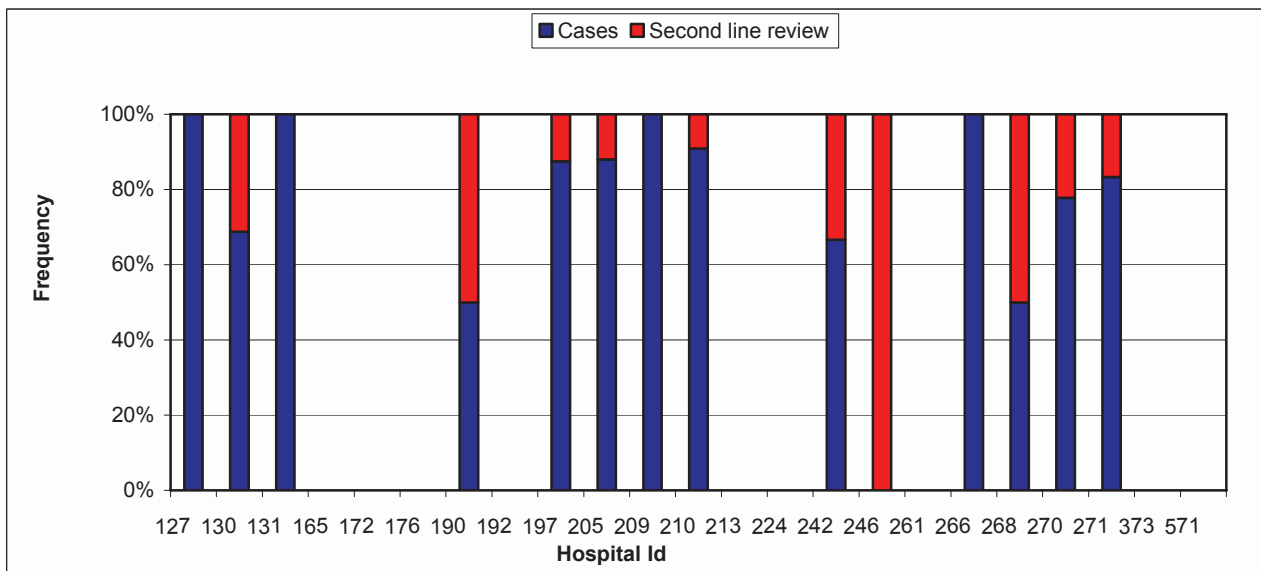


Comment

- In total 66 (87%) of the 76 cases assessed did not receive treatment in a high dependency or critical care unit.
- The assessors suggested that 13 (20%) of these 66 cases might have benefited from some form of critical care support.

Second Line Assessments

Figure 19: Percentage of cases referred for second line assessment by hospital (n=147)

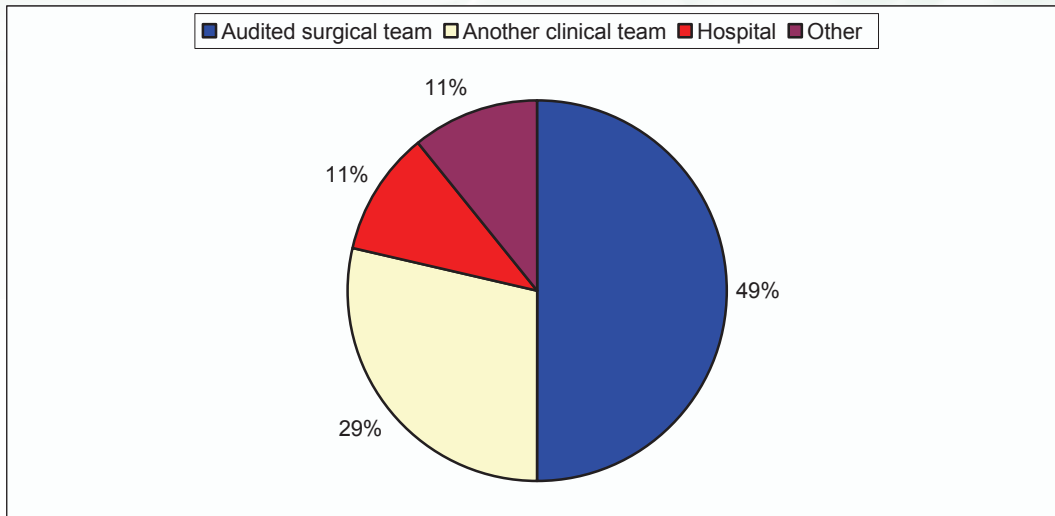


Comment

- No inferences are made.



Figure 20: Apportioning of responsibility for issues of management (n=19)

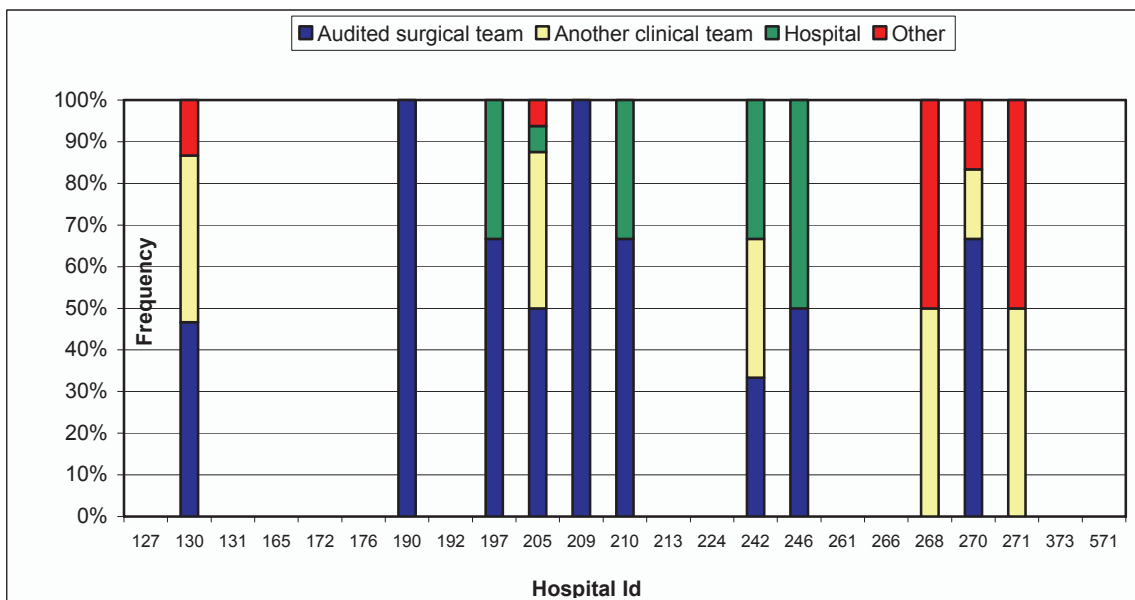


Note: Complex patients with multiple co-morbidities may require input from several clinical teams. Issues of management may therefore be attributable to any of these teams involved in a patient’s care.

Comment

- In this small sample, half of the issues identified were deemed to be attributable to the surgical team.

Figure 21: Apportioning of responsibility for issues of management by hospital (n=19)



Note: Complex patients with multiple co-morbidity may require input from several clinical teams. Issues of management may therefore be attributable to any of these teams involved in a patient’s care.

Comment

- The “Hospital” category is not well defined but will include such issues as staffing levels, availability of critical care support. There is an obvious overlap with “Other” category. This requires better definition of each category.



- “Other” category included weekend on call staff, issues with transferring institution or referring hospital, ICU communication and care, resources available, anaesthetic care.

Clinical Incidents

This peer review process is a retrospective examination of the clinical management of patients who die while under surgical care. The assessor must decide if death was a direct result of the disease process alone or if aspects of the management of the patient may have contributed to the outcome.

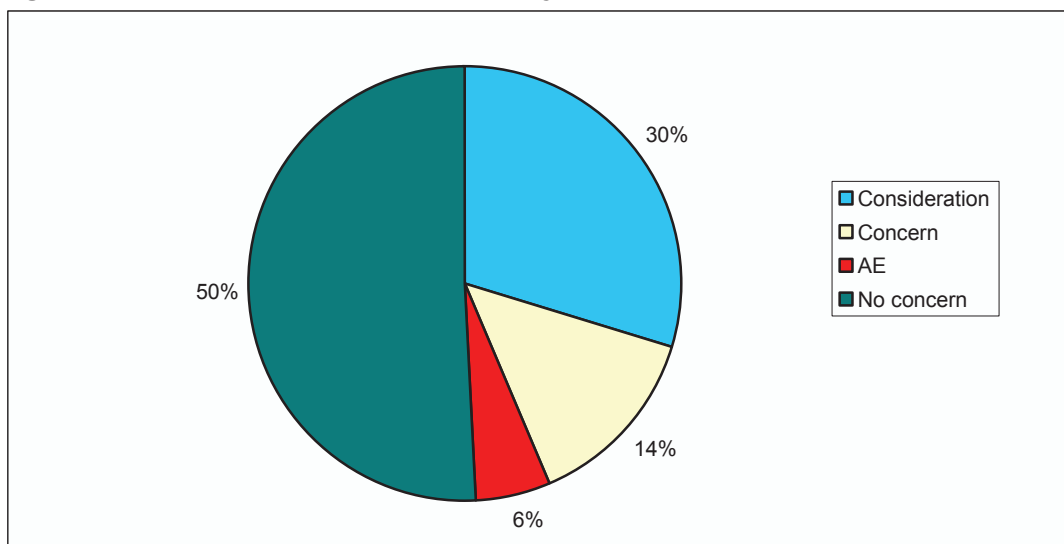
There are therefore two main outcomes:

1. Death was a direct result of the disease processes involved and no issues of patient management were raised by assessor.
2. An assessor perceives that aspects of clinical management may have contributed to death.

This is stratified by the perceived potential for impacting on the outcome.

- An ‘**Area for Consideration**’: This is where the assessor believes areas of care **could** have been improved or different, but recognises that the issues raised are debatable.
- An ‘**Area of Concern**’: This is where the assessor believes that areas of care **should** have been better.
- An ‘**Adverse Event**’: This is defined as an unintended "injury" caused by medical management rather than by the disease process and which is sufficiently serious to lead to prolonged hospitalisation or to temporary or permanent impairment or disability of the patient at the time of discharge, or which contributes to or causes death.

Figure 22: Clinical incidents detected by the audit process (n=76)

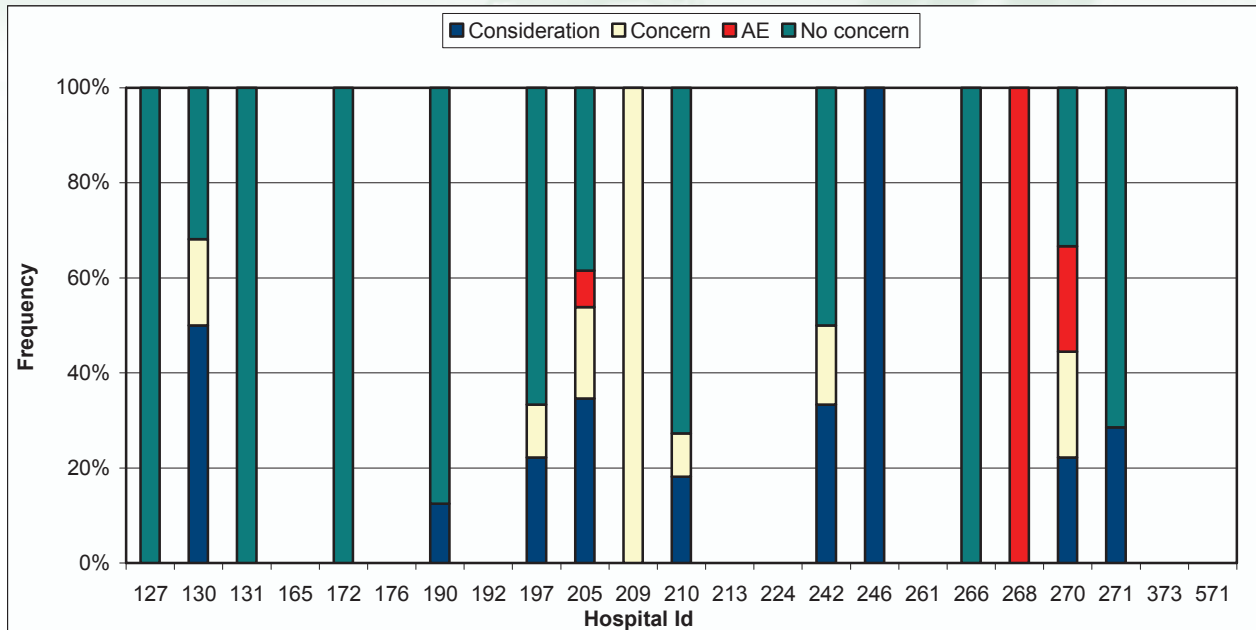


Comment

- In 38 (50%) of the 76 cases completing the audit process no issues of patient management were perceived.
- It was the assessors perception that a significant error of patient management (adverse event) had occurred in 2 (6%) patients.



Figure 23: Clinical incidents detected by audit process by hospital (n=76)



Comment

No inferences are made.

Table 1: Clinical Incidents - Areas of consideration, concern and adverse events (n=19)

Areas of CONSIDERATION	Did not affect clinical outcome	May have contributed to death	Probably contributed to death	Total
Delays in patient transfer	0	0	0	0
Incorrect/inappropriate treatment	0	0	0	0
Delays in treatment	0	4	0	4
Wrong diagnosis	0	2	0	2
Patient fall	0	0	0	0
Lack/failure of access to critical care facilities	0	0	0	0
Communication failures	0	0	0	0
Technical errors during surgery/procedure	0	0	0	0
Drug-related problems	0	0	0	0
Preoperative assessment/management	0	2	0	2
DVT prophylaxis	0	0	0	0
Postoperative management	0	2	0	2
Inappropriate staffing levels	0	2	0	2
Equipment related issues	0	0	0	0
Anaesthesia related issues	0	0	0	0
Patient factors	1	0	0	1
Other issues	0	0	0	0
Total	1	12	0	13



Areas of CONCERN	Did not affect clinical outcome	May have contributed to death	Probably contributed to death	Total
Delays in patient transfer	1	0	0	1
Incorrect/inappropriate treatment	0	0	0	0
Delays in treatment	0	3	0	3
Wrong diagnosis	0	0	0	0
Patient Fall	0	0	0	0
Lack/Failure of access to critical care facilities	0	0	0	0
Communication failures	0	0	0	0
Technical errors during surgery/procedure	0	0	0	0
Drug-related problems	0	0	0	0
Preoperative assessment/management	0	0	0	0
DVT prophylaxis	0	0	0	0
Postoperative management	0	0	0	0
Inappropriate staffing levels	0	0	0	0
Equipment related issues	0	0	0	0
Anaesthesia related issues	0	0	0	0
Patient factors	0	0	0	0
Other issues	0	0	0	0
Total	1	3	0	4

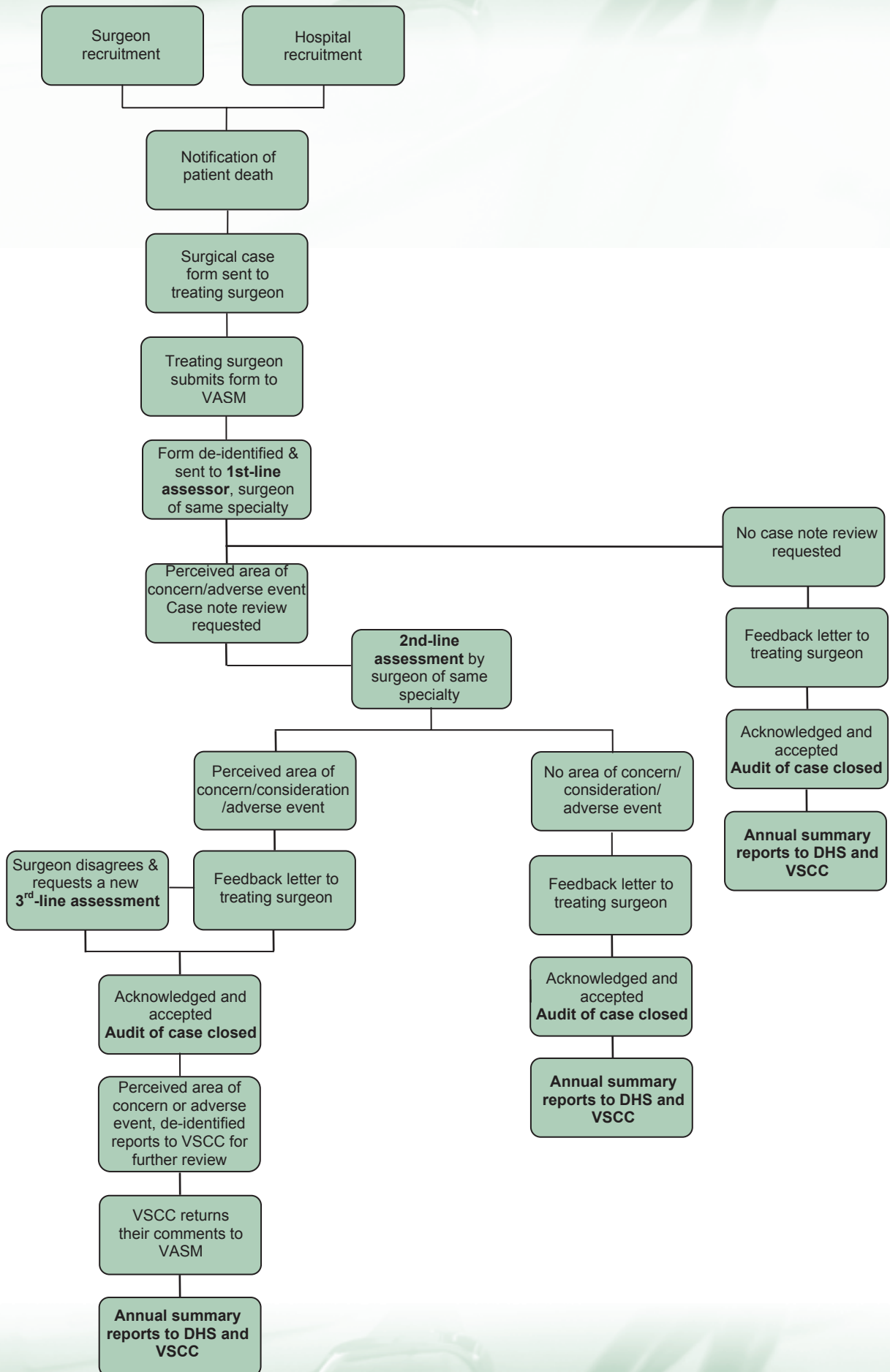
Adverse Events	Did not affect clinical outcome	May have contributed to death	Probably contributed to death	Total
Delays in patient transfer	0	0	0	0
Incorrect/inappropriate treatment	0	0	0	0
Delays in treatment	0	0	0	0
Wrong diagnosis	0	0	1	1
Patient fall	0	0	0	0
Lack/failure of access to critical care facilities	0	0	0	0
Communication failures	0	0	0	0
Technical errors during surgery/procedure	0	1	0	1
Drug-related problems	0	0	0	0
Preoperative assessment/management	0	0	0	0
DVT prophylaxis	0	0	0	0
Postoperative management	0	0	0	0
Inappropriate staffing levels	0	0	0	0
Equipment related issues	0	0	0	0
Anaesthesia related issues	0	0	0	0
Other issues	0	0	0	0
Total	0	1	1	2

Comment

No inferences are made.



Figure 24: VASM audit process





Acknowledgments

The Victorian Audit of Surgical Mortality would like to acknowledge the support and assistance of the many individuals and institutions that have helped in the development of this project, including:

- participating Victorian hospitals
- participating Victorian Fellows & International Medical Graduates
- assessors, in particular the dedicated specialty specific first-line assessors
- surgeons who have acted as assessors, for the time and effort providing detailed and valuable case-note reviews
- hospital medical records departments
- Victorian Department of Human Services, for funding the project
- Victorian Surgical Consultative Council
- Royal Australasian College of Surgeons, in particular the Research, Audit and Academic Surgery Division, the Australian and New Zealand Audit of Surgical Mortality Management Committee and the Victorian Management Committee
- Western Australian Audit of Surgical Mortality
- Tasmanian Audit of Surgical Mortality
- South Australian Audit of Perioperative Mortality
- Queensland Audit of Surgical Mortality
- The Collaborating Hospitals' Audit of Surgical Mortality
- Royal Australasian College of Medical Administrators

VASM Management Committee

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Michael Dobson	Chair, Victorian State Committee
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Peter Thomson	Australian Society of Otolaryngology, Head and Neck Surgery
Bruce Waxman	Colorectal Surgical Society of Australia and New Zealand
Keith Stokes	Australasian Association of Paediatric Surgery
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