

Scottish Audit of Surgical Mortality

Summary Report

2005 data





Key points

- The audit continues to benefit from a high rate of compliance.
- The number of deaths occurring after elective surgery continues to fall and is the lowest since the audit started in 1994.
- Individual annual reports for consultant surgeons and anaesthetists are now being produced for inclusion in consultants' appraisals.
- Provision and utilisation of HDU and ICU care has continued to improve.
- End of life (palliative) care continues to pose a challenge.
- Almost 39% of patients who died under orthopaedic care were admitted from a nursing home or another hospital.

What is the Scottish Audit of Surgical Mortality?

The Scottish Audit of Surgical Mortality reviews the deaths in hospital of patients who are under the care of a surgeon. The Audit is voluntary and confidential, and every case is peer reviewed by a consultant from a different health board. The Audit covers virtually all surgeons and anaesthetists in Scotland. The only exception are the cardiac surgeons who have their own audit. However they are represented within SASM's administrative process and in the future will also be submitting data to the audit. In the past the Audit produced 5 levels of reporting;

- Reports to surgeons and anaesthetists on individual cases
- Reports to NHS boards
- Reports covering surgical and anaesthetic specific areas of interest
- A national report
- case assessment booklet.

In 2006, for the first time, consultant surgeons and anaesthetists have been sent a personal report summarising all the patients who died under their care in 2004. Early next year they will be sent their report for 2005. The format of the report allows them to compare the care of their patients who have died with other surgeons and anaesthetists, both in their

own hospital and Health Board, and across Scotland. Surgeons and anaesthetists are being encouraged to use these reports during their annual appraisal process.

How many deaths were there in 2005?

In 2005 there were 301,894 surgical admissions in Scotland, of which 240,302 had an operation/procedure.

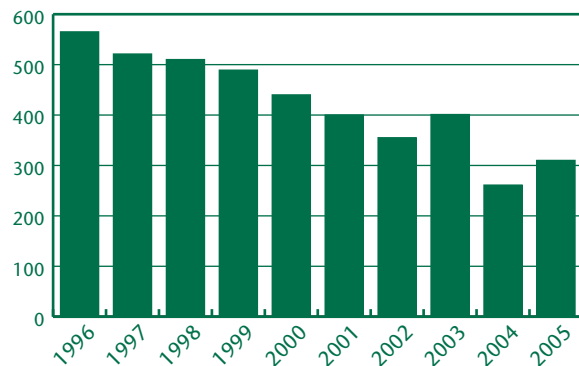
The total number of deaths under surgical care in Scotland in 2005 was 4147. Of these 3698 were audited; 3132 following emergency admission and 310 following elective admission. In 256 cases the type of admission was not recorded.

More than four fifths (87%) of these patients had co-existing medical conditions which would have increased the risk of death.

Elective surgery numbers

The number of patients who died following an elective (i.e. non-emergency) admission continued to fall and in 2005 was at an all time low of 310, less than half the number of 10 years ago. In 246 of these an operation had taken place, while there had been no operation in the other 64. (All comparisons exclude terminal care cases to allow for trend analysis).

Number of deaths reported to SASM which followed elective surgical admission, year (excluding terminal care)

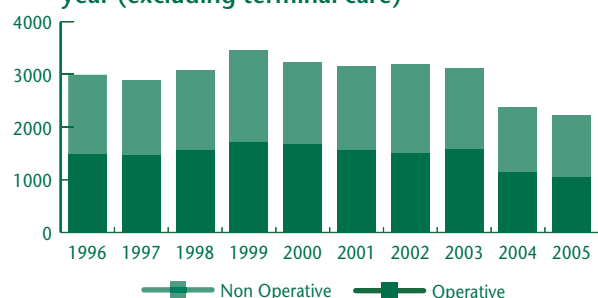


Emergency surgery numbers

Similarly the number of audited deaths following emergency admission fell from a peak of 3456 in 1999 to 3132 in 2005.

The chart below excludes terminal care cases, of which there were 808 in 2005.

Number of deaths reported to SASM which followed emergency surgical admission, by year (excluding terminal care)



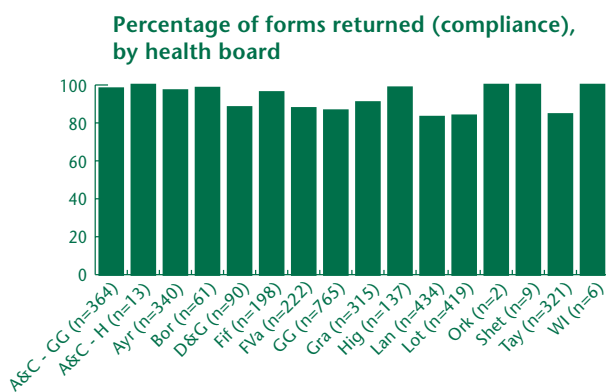
Are all deaths reviewed?

As of 31/10/06, the Audit had reviewed 90% of cases and this is similar to the levels reported in the two previous years (88% in 2004 and 91.5% in 2003). The number of cases not returned for review broadly remains the same (454). It should be noted that cases continue to be returned after the preparation of this report. For example the 'final' return rate for 2004 was 93.5%.

This year the Audit redefined its terms of compliance. It now expects surgeons and anaesthetists to return forms for all patients designated as having been under their care. It is recognised that in the majority of cases failure to do so is due to administrative problems such as unavailability of case notes. This will be taken into account in the 2007 audit.

In 2005, out of 554 surgeons, 78% returned all of their forms for review. However, 17 (3%) returned none (total 41 deaths).

The return rate by health board is shown below. The return rate was higher in Boards with smaller numbers of patients.



In how many cases were there concerns about how the patient's care was provided?

The percentage of cases where concerns were expressed has fallen compared to 5 years ago, but has been broadly similar over the past 3 years.

Assessors found areas of concern that were thought to have contributed to the death of a patient in 179 cases. In a further 13 cases (6 elective, 7 emergency) the area of concern was held to have caused the death of the patient.

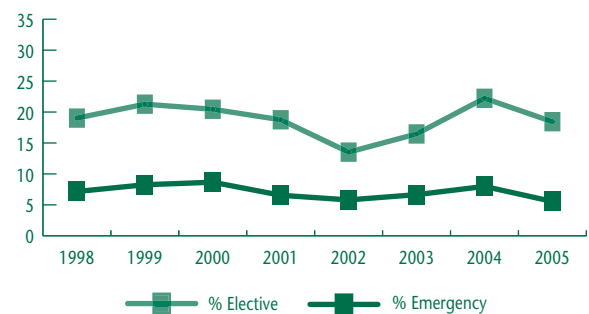
All cases have been further reviewed and in some instances extenuating circumstances or recognised complications were noted. It is expected, under clinical governance requirements, that all such cases will have been reviewed at local morbidity and mortality meetings.

Areas of concern or for consideration (ACONs)

All areas of concern or for consideration (ACONs) are coded. An analysis of the frequency of use of these codes over the last 10 years has been performed. Over

this time SASM has reported on 40,817 patients of whom 6,981 (17%) had one or more ACON code applied to them (up to 3 surgical and 3 anaesthetic). In each case the ACONs are further categorised into: (1) those that made no difference to patient outcome; (2) those having contributed to the eventual outcome and (3), those which caused the death of a patient who would otherwise have been expected to survive. These are fed back through SASM's various reporting mechanisms.

Areas of concern considered by either surgical or anaesthetic assessors to have "caused death" or "contributed to death", by year



The most frequently used codes have been grouped for ease of analysis into 8 ACON categories. The frequency of each category has been calculated for 2005 and compared to a frequency of use in 1996 (which was the first year these ACON codes were used).

ACON Category	% audited deaths (1996)	% audited deaths (2005)
Delays	2.3	2.1
Quality of care	2.6	0.9
Lack of senior staff involvement	0.9	0.9
Surgical decision making	1.2	0.8
Diagnostic problems	1.5	0.6
Assessment problems	0.6	0.7
Communication problems	0.3	0.9
Anastomotic leaks	0.3	0.2

"Delays" are the largest group. The commonest code overall is delay to surgery, with others, such as delay in transfer or delay in recognising complications, commonplace. "Quality of care" covers a variety of codes such as inadequate resuscitation, failings in peri-operative care, lack of critical care facilities, and poor post-operative care. "Lack of senior staff involvement" refers to junior surgeons and anaesthetists working unsupervised. This practice has changed in recent years, with much greater consultant involvement now than 10 years ago. "Surgical decision making" includes criticisms that the operation should not have been done at all or was not of the correct type. "Diagnostic problems" refers to missing the diagnosis or making the wrong one. "Anastomotic leaks" are the commonest specific surgical complication cited.

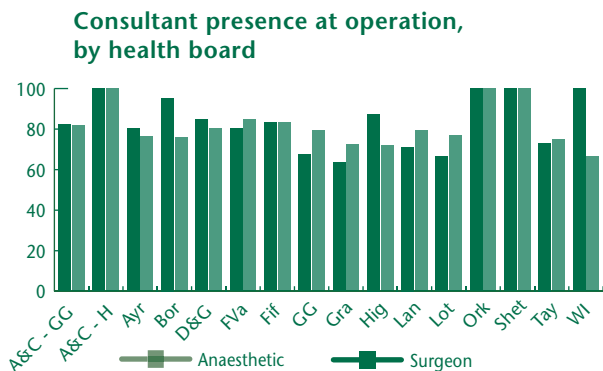
Most of the ACONs identified in these categories have been highlighted by SASM in the past but it is useful to see the relative frequencies and their occurrence. In particular, "Quality of care" issues appear to be much less of an issue, while communication problems appear to be on the rise.

The taxonomy (coding) system is currently being reviewed. The aim is to produce a more simple structure which will more easily capture and describe factors in the process of the care of surgical patients who die.

How much are consultants involved in the care of patients who die?

Consultants are increasingly directly involved at critical times in the care of those who die. Consultant surgeons and anaesthetists were at the operating table in over 88% of these cases following elective admission, and between 70% (in the case of surgeons) and 76% (anaesthetists) of those who died after an emergency admission.

The consultant presence at operation is shown below by health board.



In 15 cases assessors criticised the grade of surgeon involved (0.9% of deaths following an operation) while the grade of anaesthetist was criticised in 35 cases (2.1%).

When patients died without having had an operation, the decision not to operate was made by a consultant in 96% of cases.

Named Consultant

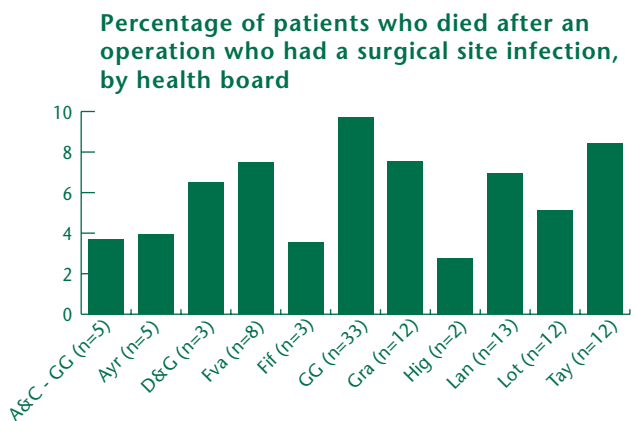
An area to highlight is that in 110 cases the returned form did not name the consultant anaesthetist responsible for that particular case. This creates problems for SASM's reporting process and is also contrary to current standards laid down by NHS Quality Improvement Scotland and the Royal College of Anaesthetists.

How many patients undergoing surgery in Scotland develop an infection and die?

17.8% of patients who died following an operation had developed a Hospital Acquired Infection (HAI) after transfer to hospital, while a further 2.9% patients already had an infection on admission to hospital.

The percentage of patients who developed HAI varied up to two fold across Scottish health board areas.

Following their operation, 6.5% of audited patients had developed an infection at the site of operation. Again, there were considerable differences between health board areas.



In 2005 7.6% of patients (126) who died following an operation had Methicillin Resistant Staphylococcus Aureus (MRSA) infection at the time of death. In 4.5% of cases (75 out of 126) this was thought to have contributed to death. Almost half of those with MRSA had the infection when they were admitted (1.7% of all deaths).

SASM will continue to analyse information on the occurrence of infection in patients who die. This year, as we did last year, we have reported on MRSA. However, this organism accounted for only a minority (20%) of instances of a death contributed to by infection. Next year's form (2007) will ask for additional data on other infections that have been highlighted (for example Clostridium difficile). The Audit also continues to collect information on all infections (particularly chest infections) associated with surgical deaths including those where the patient has not undergone an operation.

In 1999 SASM highlighted a concern about the level of care provided to some of the most sick patients. What is the situation now?

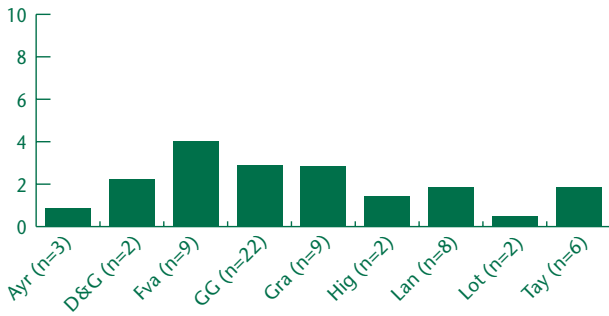
Over the whole of Scotland there has been a continuing improvement.

In 2005, of the 3698 audited patients who died under surgical care, 1350 (36.5%) spent some time in a critical care facility, either an Intensive Care Unit (ICU) or a High Dependency Unit (HDU). This compares with 26.5% (1180/4445) in 1999.

There is clearly an increase in the use of these beds, probably in part due to greater availability. For example, use by patients who did not have an operation but died was 409 (20%) in 2005 compared to only 7 (0.3%) in 1999.

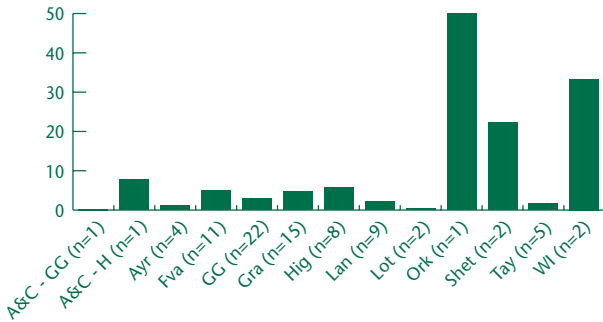
The percentage of patients where a High Dependency Unit (HDU) was not available at the time of need is shown below. In 2003 this was 2.6% The overall rate in 2005 dropped to 1.7%.

Percentage of patients where HDU was not available at time of need, by health board



The percentage of patients where an Intensive Care Unit (ICU) was not available at time of need is shown below. In 2003 this rate was 3.1%. In 2005 the overall rate was 2.2%.

Percentage of patients where ICU was not available at time of need, by health board



In both these analyses there is considerable variation between health boards.

Surgeons and anaesthetists were asked whether there were any concerns about the management of patients in ICU or HDU. In only 33 instances (2.4% of all patients who went to ICU or HDU) were concerns expressed.

To broaden the review of intensive care, SASM and the Scottish Intensive Care Society (SICS) have started a pilot collaborative enquiry. The Scottish Intensive Care Society Audit Group (SICSAG) runs an audit in all ICUs in Scotland that captures a considerable amount of data on every patient admitted to ICU. It is planned that SASM and SICSAG combine data from both audits, to improve the information available on ICU stay for those who die under surgical care. This co-operation will make available much more detail on the quality of intensive care in surgical patients who die.

One area which perhaps needs to be highlighted is that in 10 deaths following a fractured neck of femur the assessor criticised the failure to use HDU or ICU. It is known from the Scottish Hip Fracture Audit that approximately 10% of such patients die within a month and 20% die within 4 months. This reflects the age and significant co-morbidity of this patient population. If there is an expectation that in such cases these units should have been used then there are clear resource implications.

Was there a problem in obtaining radiology services?

In previous reports there was criticism that some hospitals had problems in accessing radiology services

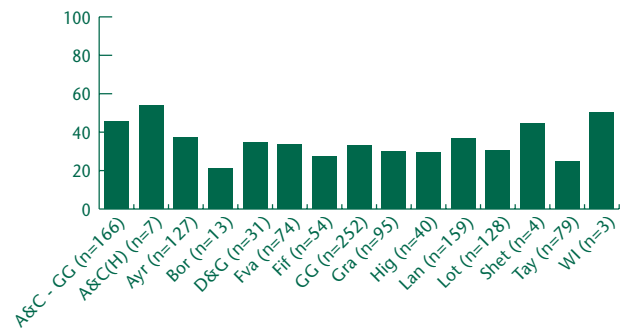
to help in diagnosis. At that time, surgeons felt that this was an issue in one in every 60 patients who died. This number fell during 2004 and in 2005 it fell to less than one in every 100 patients. The delay was thought to be important to the patients' outcome in one in every 250 patients in 2003 and this almost halved to one in every 500 by 2005.

Problems in imaging were found in 13 out of the 15 Health Boards in Scotland in 2003 and this fell to 8 out of 15 in 2005.

What was the quality of care provided to patients at the end of life?

This is still of concern, as there appears to be a low level of satisfaction by surgeons with the end of life care received.

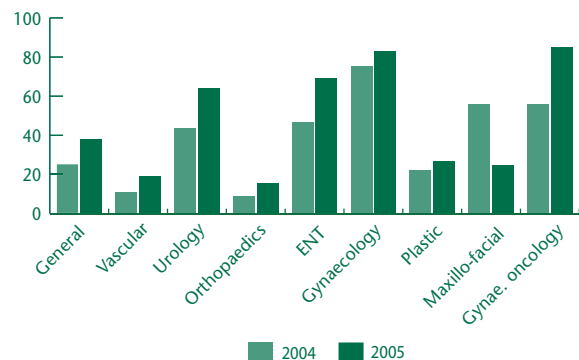
Percentage of patients where surgeon was satisfied with end of life care received, by health board



The level of satisfaction of clinicians appears to vary across specialities, with orthopaedics and vascular surgery expressing the least satisfaction with the quality of end of life care. This illustrates the fact that end of life care does not only apply to cancer but also to other end stage illnesses.

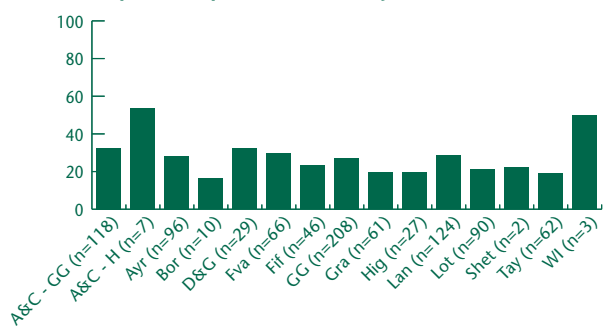
When compared to last year, however, it does appear that the level of satisfaction is improving.

Percentage of patients where surgeon was satisfied with end of life care received, by specialty



The use of specialist terminal or palliative care also appeared to vary across health boards. In conjunction with the palliative care group the 2007 form will collect data to investigate this further.

Percentage of patients who received specialist palliative care, by health board



Looking forward – what should be the priorities for SASM?

Compliance

SASM can only contribute fully to improving patient care in Scotland if it is able to review the highest possible number of deaths. It will be a continuing priority to encourage all surgeons and anaesthetists to return their forms as fully as possible. The administrative factors that can sometimes hinder this process need to be addressed.

Team reporting

Reflecting the way that care is now provided, returns and reports at the “team” level will be encouraged.

Collaboration

The Audit is working closely with the Scottish Intensive Care Society. A small pilot project is currently underway which will define what questions are to be asked in the future.

In addition it will be working closely in collaborative projects with the Scottish Hip Fracture Audit and the Renal Association.

Clinical governance

An area that is increasingly being brought to the medical profession’s attention is the issue of clinical governance, with a requirement to continuously monitor and improve the quality of services provided. SASM produces data which are relevant both to the actions of individual surgeons or anaesthetists and their teams and to services provided by health boards. The ultimate purpose of SASM is to ensure that patients under the care of a surgeon receive the highest standard of care. It does this through an educational process of peer review, with feedback to individual consultants allowing reflection on the management of particular cases leading to improved action at individual, unit or hospital level. It must be stressed that it is extremely rare for there to be any concern about any particular individual. Although the audit is voluntary and confidential, it must be remembered that it has responsibilities to ensure that information it holds is used in a way which ensures that the safety and interests of patients are protected.

SASM is therefore currently undertaking a process of consultation and review on how it should interact with local mechanisms for clinical governance. A discussion paper can be found on its website : www.sasm.org.uk/

Comments from Chairman of SASM Board

The satisfaction derived from seeing the continuing fall in the number of people receiving surgical care in Scotland who die must be tempered by the continuing finding that, in a substantial minority, there was concern about factors contributing to or causing death. Few of the latter reflected specific clinical actions or omissions. Instead there was a preponderance of the “organisational” problems that delay or deny access to effective care. Further, substantial improvements are possible but will require vigorous efforts, properly resourced and supported, directed at advancing the safety and quality of the whole system of provision of surgical care.

Over the last year, the Audit has successfully faced the challenge of the new “Freedom of Information” Act. The Commissioner’s clear support for the confidentiality of SASM and other clinical audits has been greatly welcomed – but does carry an obligation of as high as possible participation, and of interaction with local clinical governance processes so that lessons learned do influence practice. The consultation currently underway aims to ensure that this will be achieved while retaining the support and confidence of the reporting participants.

The relocation of the SASM office was also effected with little perceptible interruption to the work.

The links formed with other audits in Scotland are welcome although efforts to develop a nursing perspective have not so far been fruitful. Exchanges within the UK and internationally add a valuable perspective.

At the end of my 3 year term as Chairman of the Board of the Audit, it is a pleasure to acknowledge and to thank many people – the participating clinicians, the staff of the office, assessors, the Liaison Group and the members of the Management Committee and of the Board of the Audit. Their contributions, so often given voluntarily, make SASM a continuing force for improvement in the outcome of people having surgical care in Scotland and an example for the rest of the world to envy and to emulate.

Glossary of health board abbreviations

A&C – GG	Argyll & Clyde – Greater Glasgow
A&C- H	Argyll & Clyde - Highland
Ayr	Ayrshire & Arran
Bor	Borders
D&G	Dumfries & Galloway
Fif	Fife
FVa	Forth Valley
GG	Greater Glasgow
Gra	Grampian
Hig	Highland
Lan	Lanarkshire
Lot	Lothian
Ork	Orkney
Shet	Shetland
Tay	Tayside
WI	Western Isles