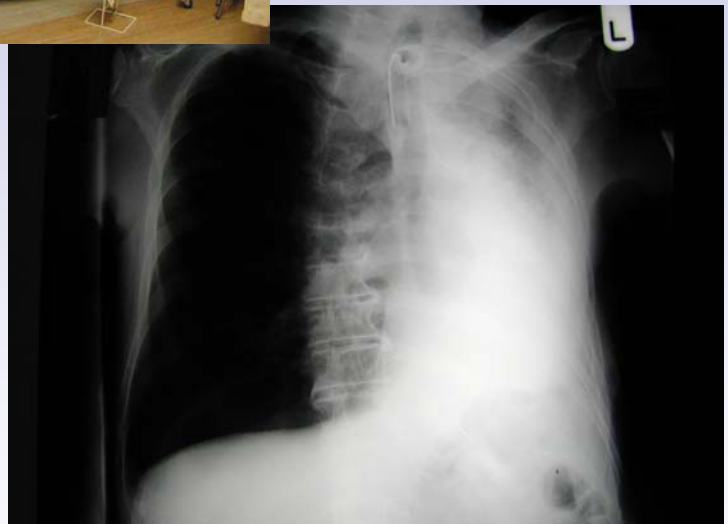


# Scottish Audit of Surgical Mortality

## Summary Report

2002 data





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### 2002 data

#### Key points:

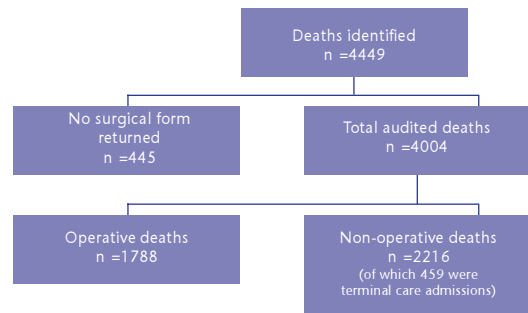
- ◆ The number of adverse events in patients who die under surgical care continues to fall for elective and emergency cases.
- ◆ The presence at operation of senior clinical staff is increasing; it is greater in patients who die following elective surgery than emergency surgery.
- ◆ There continues to be an improvement in post operative care. The number of deaths associated with failure to use High Dependency Units or Intensive Therapy Units continues to fall.
- ◆ The percentage of deaths following elective inpatient surgical admission has fallen from previous years to 0.27%. The percentage of deaths following emergency surgical admission was 2.29%.
- ◆ There is a growing issue with the pattern of care of an increasingly ageing and frail population within surgical wards. This can be seen in the provision of care for patients admitted as emergencies either with terminal malignancy, non-surgical diagnoses or post-orthopaedic care.

#### Introduction

This report summarises the SASM data for patients dying under surgical care during 2002. A full analysis of the 2002 data is available at [www.sasm.org.uk](http://www.sasm.org.uk)

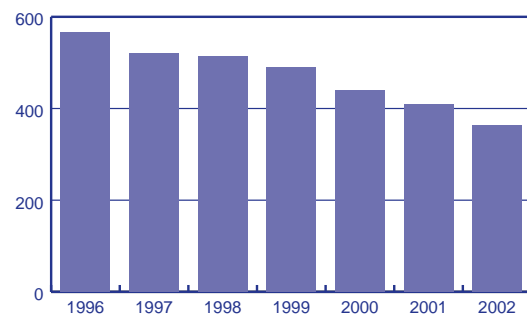
#### Summary

There were 4449 patients who died in Scotland while under surgical care in 2002.



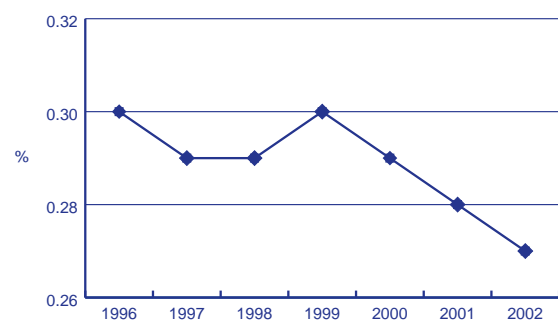
Over the period 1996-2002 the number of deaths following elective admissions for inpatient treatment has fallen.

Number of deaths reported to SASM which followed elective surgical admission, by year



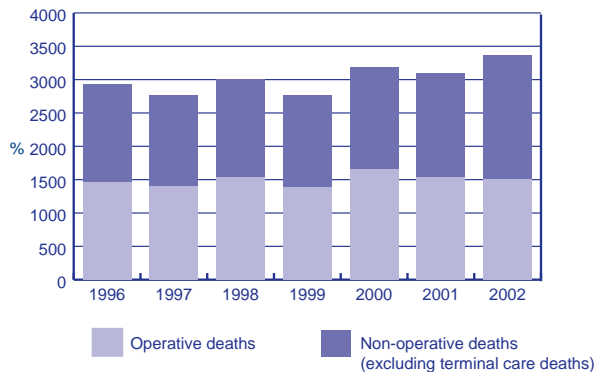
The percentage of elective surgical inpatient admissions that died has also fallen. (The chart below differs from those in previous years with the exclusion of daycase admissions). The mortality rate for elective inpatients for surgical specialities in Scotland is 0.27%.

% of elective surgical admissions who died under surgical care in Scotland, by year



More than 90% of deaths under surgical care followed emergency admission. There has been no increase in the number of operative deaths of patients admitted as an emergency.

Number of deaths reported to SASM which followed emergency surgical admission, by year



In 2002 2.29% of all patients admitted as surgical emergencies died under surgical care.

### Care Pathway

#### Operatives cases

The commonest conditions causing admission which leads to post-operative death are shown in order of frequency in the table.

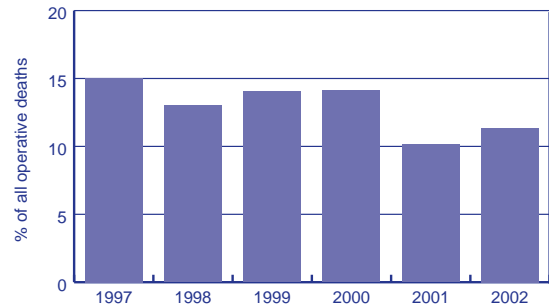
- Fracture of neck of femur
- Peripheral arterial occlusive disease
- Ruptured abdominal aortic aneurysm
- Acute intestinal vascular insufficiency
- Malignant neoplasm of oesophagus
- Perforated diverticulum of colon
- Malignant neoplasm of sigmoid colon

These conditions predominantly cause emergency admission.

In addition to the cause for their surgical admission, significant ongoing medical conditions were present in 86% of patients who died (59% cardiovascular, 39% respiratory and 18% renal). In the audited population there was no substantial difference between elective and emergency patients.

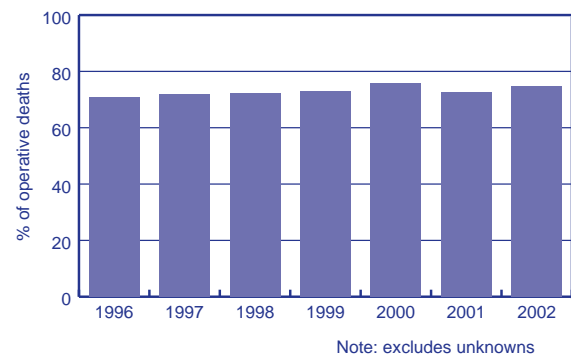
The percentage of cases where the assessors felt that the quality of pre-operative care could have been improved was similar to that for 2001. The commonest pre-operative adverse event was a delay to surgery for a wide variety of reasons.

Surgical assessor or anaesthetic assessor said that the journey of care up to the point of operation (including pre-admission) could have been improved, by year



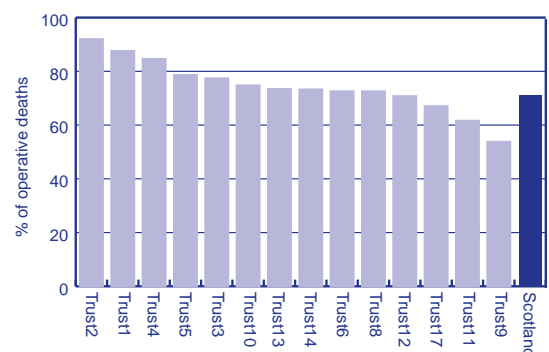
The decision to operate was taken by a consultant surgeon in elective surgery in 99% of cases and in emergency surgery in 97% of cases. In 2002 a consultant surgeon operated or assisted in 75% of cases (92% of elective operations and 71% of emergency operations where the patient subsequently died). This has remained broadly similar over the past 7 years.

Consultant operating or assisting, by year



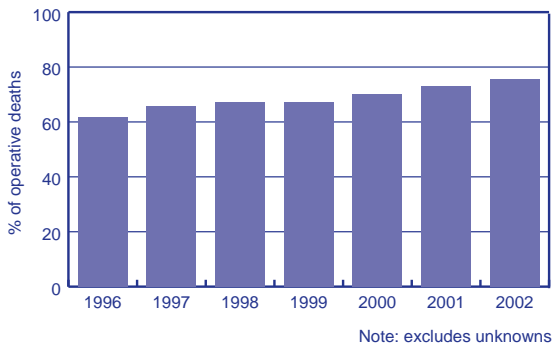
Consultant surgeon presence at the operating table varied across Scotland though the assessors criticised the seniority of the surgeon present in theatre in only 26 cases (1.5%) (60 in 1999, 30 in 2000, and 28 in 2001).

% of consultants surgeons operating or assisting, by Trust



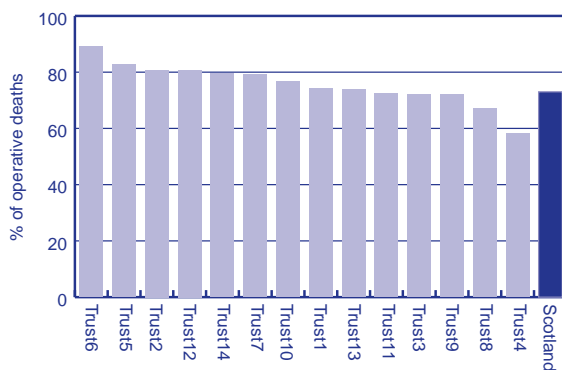
The percentage of operations where the anaesthetic consultant was present in 2002 was 76% (89% of elective and 73% of emergency operations) which continues the upward trend from 62% in 1996.

Consultant anaesthetist present, by year



Again there was some variation across Trusts in Scotland though the assessors criticised the seniority of the anaesthetist in only 3 cases (11 in 2001).

Consultant anaesthetist present, by Trust



In 802 (45%) cases there was a significant post-operative complication, but of these 692 were medical rather than surgical, mirroring the high prevalence of co-morbidities. There was no delay in recognising the complication in 96% of the cases. Failure to use HDU or ITU either by omission or non availability appears to show a decline (113 cases in 2000, 65 cases in 2001 and 21 cases in 2002).

There was a degree of variability between specialties in the level of criticisms of post operative care by the assessors.

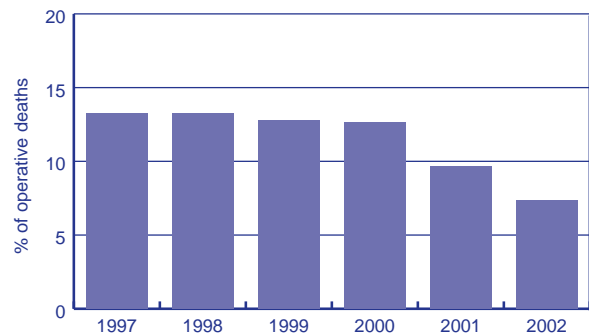
Specialty	% where post-op care could have been improved	Median Age
General surgery	7.0	77
Orthopaedic surgery	11.1	86
Vascular surgery	5.8	73
Urology	6.0	72
Neurosurgery	4.9	70

Some of the criticisms related to patterns of service provision and management of pre-existing medical illness rather than specific surgical problems. This was particularly true of elderly frail patients with fractured hips who remained in orthopaedic units for prolonged periods while awaiting rehabilitation. This group of patients with complex medical and social care needs is the subject of a more detailed targeted national audit (Scottish Hip Fracture Audit).

This issue of the most appropriate placement of patients without an on-going surgical problem is echoed in the non-operative and terminal care groups.

Overall, post-operative management continues to show an improvement from previous years with a further reduction in the percentage of cases in which the assessors believed that the post-operative management could have been improved.

Surgical assessor or anaesthetic assessor said post-operative care could have been improved, by year



The number of cases where assessors described an adverse event following operation is shown below.

	Made no difference to eventual outcome	Made significant contribution to death	Caused death in patient expected to survive
1998	394	259	30
1999	415	311	42
2000	377	286	30
2001	275	230	7
2002	235	186	10

### Non-operative cases

The commonest diagnoses leading to surgical admission, in patients who did not have an operation and subsequently died, are shown in order of frequency.

Newly diagnosed malignant neoplasm  
 Ruptured aortic aneurysm  
 Intestinal obstruction  
 Peripheral arterial occlusive disease  
 Fracture of neck of femur  
 Acute intestinal vascular insufficiency  
 Perforation of intestine  
 Acute pancreatitis  
 Peritonitis

Some 55% of patients who died under surgical care do not undergo surgery. There is no evidence that this proportion has changed significantly over the period. Nearly half (45%) of these were considered to have died of a condition not thought to be surgical in nature. A further 12% were thought to be unfit for surgery due to an irreversible decline in their medical condition. Where there was a decision not to operate, the decision was taken by a consultant in nearly all cases. However, in 23 cases (1.0%) assessors believed an operation should have been done.

The number of adverse events identified in the non-operative group remains small.

	Made no difference to eventual outcome	Made significant contribution to death	Caused death in patient expected to survive
1998	80	26	2
1999	40	32	4
2000	71	48	6
2001	55	38	2
2002	52	35	2

### Terminal Care

The number of patients with previously diagnosed end-stage malignant disease dying on acute surgical wards has gradually fallen over the years (667 in 1996 to 459 in 2002).

### Overall deaths

For all the patients who died, who were reviewed by SASM, the percentage of cases with adverse events either making 'no difference to the outcome', or 'contributing to the outcome' has fallen.

An adverse event was deemed to have caused death on 12 occasions (0.30%) in 2002.

	Made no difference to eventual outcome	Made significant contribution to death
1998	474	285
1999	455	343
2000	448	334
2001	330	268
2002	287 (7.2%) *	221 (5.5%) *

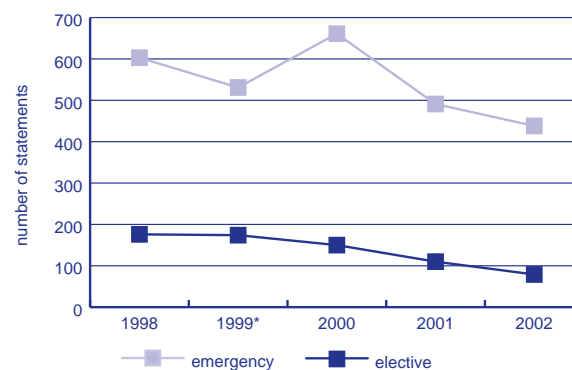
	Caused death in patient expected to survive	Total no. of operative cases with adverse event statement
1998	33	792
1999	46	844
2000	36	818
2001	9	607
2002	12 (0.3%) *	520**

\* Denominator includes terminal care deaths.

\*\* This represents 13% of operative (n=1788) and "non-operative" deaths (n=2216) reported to SASM during 2002.

The number of adverse events in patients who die following elective and emergency admission has also fallen year on year.

Adverse events statements by either surgical or anaesthetic assessors, operative deaths, by year



\* excludes 139 cases - unknown status

## Audit Process

### Surgical issues

Deaths under surgical care are identified for the purpose of review by the patient being the responsibility of a named surgeon. The surgeon is therefore a surrogate for identification rather than as might be presumed, necessarily 'responsible' for the patient's death.

The audit process examines issues related to patient care which can and frequently do extend from before the patient is cared for by the surgeon to beyond the time of true surgical care. The Audit is not limited to the role of individual consultants and over many of the issues identified the lead clinician may have little influence.

## Anaesthetic issues

The SASM process has, since 2002, attempted to identify a named consultant anaesthetist for each audited death in which the provision of anaesthesia has been part of the care pathway.

In 2002, 27% of cases had no responsible consultant anaesthetist identified to this peer-review process. Identification of such named consultants is of importance well beyond the confines of this national audit.

**Training in Anaesthesia:** The Royal College of Anaesthetists document '*The CCST in Anaesthesia: - A manual for trainees and trainers*' states that every trainee must at all times be responsible to a consultant who must be available to advise and assist the trainee as appropriate. It further highlights that the safety of a hospital's supervision arrangements is the concern of the departmental and hospital management.

**Clinical Standards for Anaesthesia (NHS QIS):** The Clinical Standards for Anaesthesia also deal with the standards required in relation to consultant responsibility for supervision. Essential criteria for the organisation of Anaesthesia Services include the following statements:-

- 1 There is a local protocol to define when non-consultant anaesthetists should request consultant advice and help.
- 2 There is an explicit mechanism to identify and contact the supervising consultant for each patient.
- 3 The consultant anaesthetist with overall responsibility is recorded on the anaesthesia record sheet.

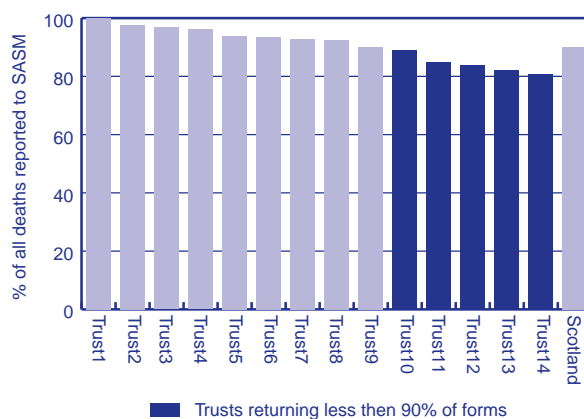
There is, therefore, an obligation from a number of sources requiring a named responsible consultant anaesthetist for every case. Identification of a consultant in every case will enable improved feedback from SASM to clinicians (including annual reviews to be used in the appraisal process) and Trusts.

## Compliance

Underpinning the success of SASM is its voluntary nature with compliance by clinicians at 90%.

The Board of SASM set a level of 90% return of cases for Trusts and 85% for clinicians. At this level five Trusts did not achieve this target, this accounted for over 50% of the non returned forms nationally.

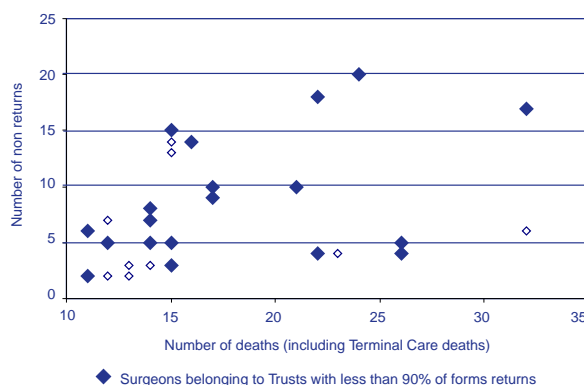
% of forms returned by September 2003, by Trust



28 consultants under whose care more than 10 patients died failed to return 85% of these cases (consultants from the five Trusts unsuccessful in achieving the 90% return rate are indicated in red).

Number of forms returned by Consultant with more than 10 deaths - 2002

(excludes consultants returning 85% or more of their forms)



The above figure also shows that despite poor returns from an individual, the high compliance of colleagues can still allow a Trust to achieve the minimum percentage return.

With 445 forms not returned the findings of the audit do not take into account the circumstances surrounding the deaths of these patients. In particular a small number of consultants with a significant number of deaths in their practice have not been included within the quality assurance and feedback offered by SASM.

## Chairman's Review

I am pleased to present the SASM report for 2002. The public should once again take confidence in the fact that all deaths under surgical care within Scotland are subjected to the scrutiny of other specialists working in the same field.

This process is designed to identify issues that need to be brought to the attention of consultants responsible for these patients and the Trusts where the care took place. SASM endeavours (when appropriate), to reassure the clinicians that care has been optimal despite the negative outcome and not to simply identify fault and blame. When the care has not been of the highest standard, the Audit aims to provide constructive feedback to facilitate improvement in care.

The figures show an improvement in the quality of care delivered by doctors and nurses working with surgical patients. The number of deaths following elective surgery continues to fall; there are improvements in post-operative care (especially the provision and organisation of critical care beds); direct consultant involvement remains extremely high and in anaesthetics continues to rise.

In this year's report there were 12 instances when an adverse event was assessed as having caused death in a patient otherwise expected to survive. Although each instance is a tragedy and represents significant systems failure (which have been fed back to the respective clinicians and Trusts), they were fortunately rare. This indicates a generally safe system.

This year the report contains information concerning individual Trusts, but does not identify them. In line with other national audits (Audit Scotland) this is to serve notice that next year the data presented will be on a named Trust basis.

Compliance with the Audit by clinicians is an issue. Though a praiseworthy 90% of cases are returned, some important lessons for safer and improved patient care may be lost amongst the 10% of cases not being submitted for review. A few individual clinicians and Trusts are not sufficiently availing themselves of the potential to learn from the deaths of patients in their care.

A concern voiced by consultants is the lack of time available to them to complete the SASM form. The new consultant contract carries within it the concept of time dedicated to 'support' activity (10 hours per week). Hopefully consultants and managers will see completion of SASM forms as a priority within this time.

Section 12 of 'Good Medical Practice' published by the General Medical Council (GMC) states a doctor '*... must take part in confidential enquiries and adverse event recognition and reporting to help reduce risk to patients.*' Persistent failure to comply with SASM by consultants could be seen to be a breach of this requirement. Clarification and guidance on this matter will be sought from the GMC.

Illnesses requiring surgical attention are not without varying degrees of risk, but all those involved in the care of surgical patients must continuously strive to reduce that risk. Patients are entitled to know that the individual clinicians and the hospital in which they are being treated are part of an external review process that will provide a safe environment which learns from past experiences to improve patient care.

Clinicians must expect a requirement for some form of quality assurance. Many quite rightly feel crude mortality tables, which fail to take into account the nature of the illness and the risk profile of the patient, are not the way forward and may even discourage intervention in borderline cases.

The Audit will provide this assurance in an annual review of consultant data for inclusion in the appraisal process. With the inclusion of individual clinicians data within the appraisal process there is no intention and no reason to break the confidential nature of the individual clinician's participation.

Clinicians who do not comply with the audit or do not wish to use their individual report will need to provide alternative third party evidence to reassure their Trust and through this process the public.

Clinicians and hospitals which are not part of an adequate patient safety structure should not be surprised if the patients lose faith in them and the service offered.

The Scottish Audit of Surgical Mortality remains a unique audit dedicated to the principles of safe surgical and anaesthetic care. I believe it has been very successful in its task and I also believe that it will continue to develop and improve, helping to build a safe environment for patient care. Central to this success is its independence from the service and its strong clinical lead which enables difficult issues to be addressed and occasionally uncomfortable truths to be told.

This is my final Annual Report and I wish all within the Audit (participants and assessors) well for the future.

## What is SASM?

The Scottish Audit of Surgical Mortality ensures that the circumstances surrounding the death of any patient who is under the care of a surgeon is subjected to an anonymous assessment by a consultant in the same specialty from a different Trust. The review considers both clinical, hospital and resource concerns. The results are fed back to the surgeon and anaesthetist. The audit is entirely voluntary and depends on the co-operation of all the participants in ensuring that confidentiality is maintained.

The non-clinical administration and organisation of the audit are now under the aegis of Information & Statistics Division (ISD) with further financial support from NHS Quality Improvement Scotland. The staff are bound by very strict confidentiality rules to preserve the integrity of the audit.

## SASM Organisation

The SASM Board, which sets out the policy for the audit, is chaired by either the President of the Royal College of Surgeons of Edinburgh or the President of the Royal College of Physicians and Surgeons of Glasgow. Its membership includes representatives from other colleges, active clinical co-ordinators, NHS Scotland, ISD and the public.

The SASM Management Committee ensures the smooth running of the audit and is chaired by the lead clinician. Its membership includes the clinical co-ordinators.

The SASM Liaison group represents the interests of the members of the professions participating in the audit.

Full details of the present members of these groups can be found at the SASM website – [www.sasm.org.uk](http://www.sasm.org.uk)

## Acknowledgements

The link to ISD is invaluable providing the statistical resource for the compilation of both this and the main web-based reports and the audit is much indebted to Mr Colin Sproul.



### Contact details

SASM, 232-242 St Vincent St, Glasgow G2 5RJ

Tel: 0141 227 3232 Fax: 0141 204 5830

Email: [surg.audit@rcpsglasg.ac.uk](mailto:surg.audit@rcpsglasg.ac.uk)

Website: [www.sasm.org.uk](http://www.sasm.org.uk)