

Scottish Audit of Surgical Mortality

Annual Report

2004 data



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All deaths

Table 1 **Number of deaths by admission type**

	Elective	Emergency	Urgent	Unknown
Number of deaths recorded	331	2813	453	494
Number of audited deaths	330	2805	452	4

Figure 1

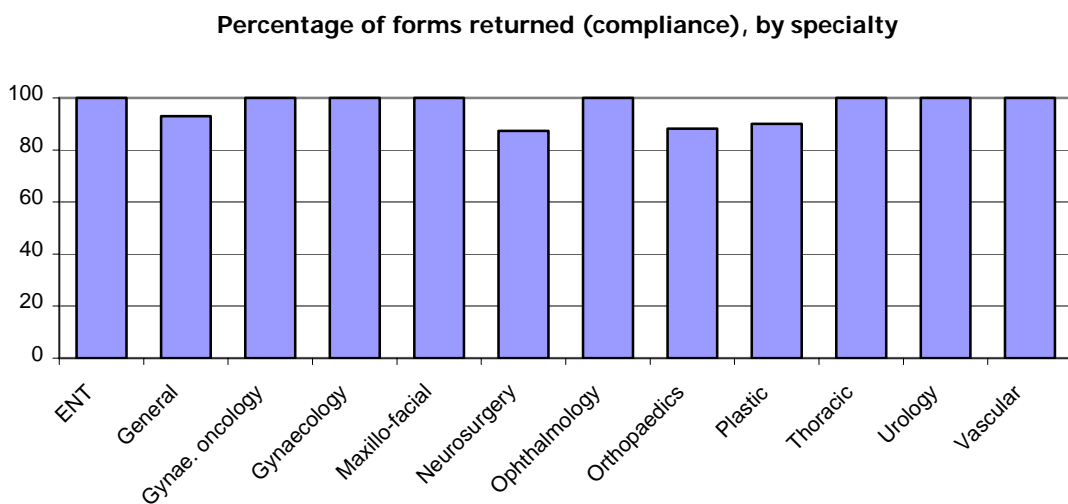
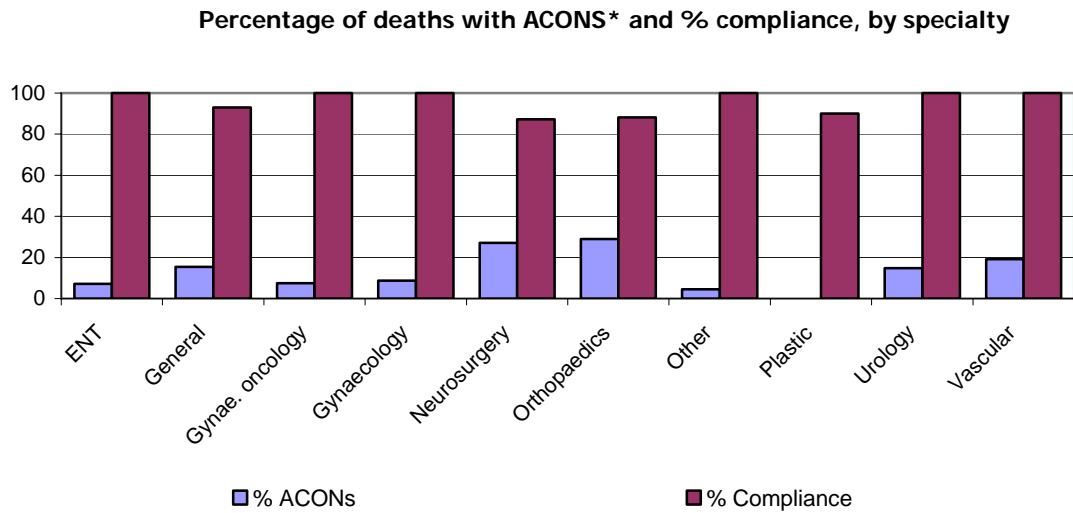


Table 2 **Forms returned (compliance), by specialty**

Specialty	Number of forms returned	Total Deaths	Percent
ENT	56	56	100.00
General	2,091	2,249	92.97
Gynae. oncology	27	27	100.00
Gynaecology	57	57	100.00
Neurosurgery	151	173	87.28
Orthopaedics	486	551	88.20
Other	22	22	100.00
Plastic	9	10	90.00
Urology	223	223	100.00
Vascular	448	448	100.00
Maxillo-facial	9	9	100.00
Ophthalmology	1	1	100.00
Thoracic	9	9	100.00
Unknown	2	256	0.78

Figure 2



* See definitions on page 24

Table 3 Deaths and compliance, by specialty

Specialty	Number of deaths with an ACON	Number of Returns	% ACONS	Number of Returns	All Deaths	% Compliance
ENT	4	56	7.14	56	56	100.00
General	324	2,091	15.49	2,091	2,249	92.97
Gynae. oncology	2	27	7.41	27	27	100.00
Gynaecology	5	57	8.77	57	57	100.00
Neurosurgery	41	151	27.15	151	173	87.28
Orthopaedics	141	486	29.01	486	551	88.20
Other	1	22	4.55	22	22	100.00
Plastic	0	0	0.00	9	10	90.00
Urology	33	223	14.80	223	223	100.00
Vascular	86	448	19.20	448	448	100.00
Maxillo-facial	1	9	11.11	9	9	100.00
Ophthalmology	0	0	.00	1	1	100.00
Thoracic	1	9	11.11	9	9	100.00
Unknown	-	-	-	2	256	0.78

Figure 3

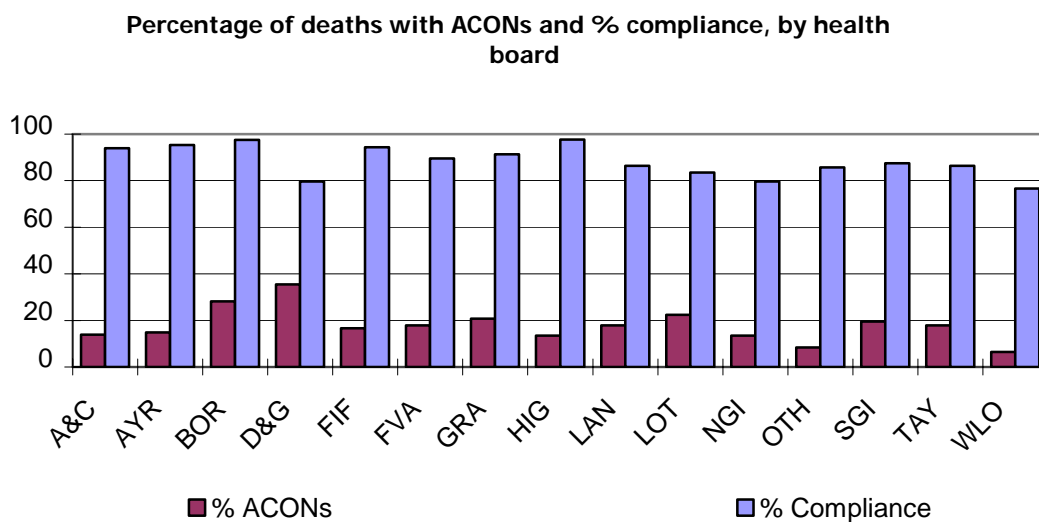


Table 4 **Quality of completion of forms, by surgical assessor**

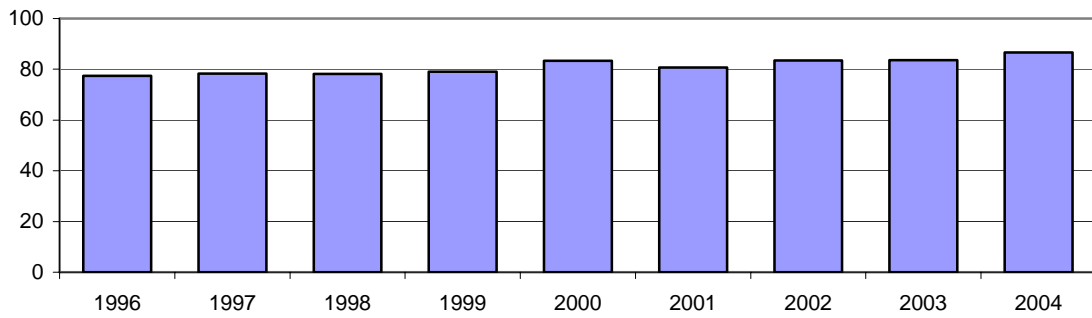
Surgical assessor:	Count	Total audited deaths	Percent
Poorly completed forms	159	3,591	4.43
Illegible forms	37	3,591	1.03
Inconsistencies between surgical and anaes forms	81	3,591	2.26

Table 5 **Quality of completion of forms, by anaesthetic assessor**

Anaesthetic assessor:	Count	Total audited deaths	Percent
Poorly completed forms	85	3,591	2.37
Illegible forms	19	3,591	0.53
Inconsistencies between surgical and anaes forms	101	3,591	2.81

Figure 6

Consultant surgeon operating or assisting (General and Vascular only), by year



* This analysis excludes Terminal Care deaths to allow a comparison to be made over time

Figure 7

Consultant surgeon operating or assisting, by health board

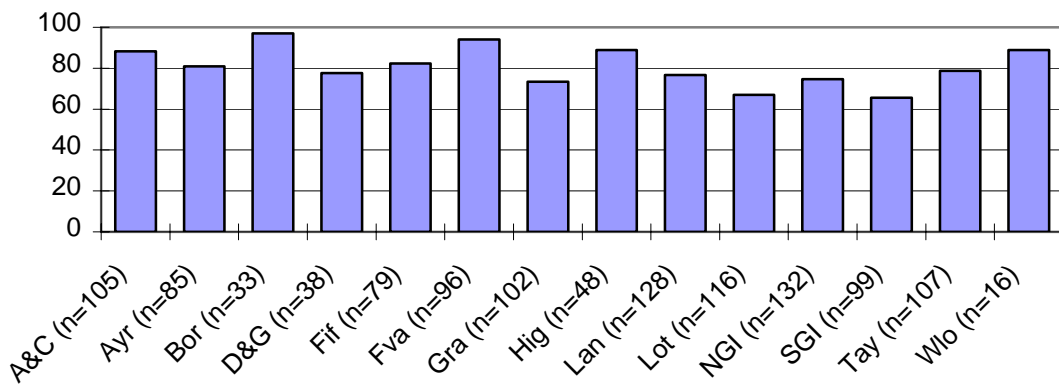


Figure 8

Consultant surgeon operating or assisting, by health board (excluding neurosurgery)

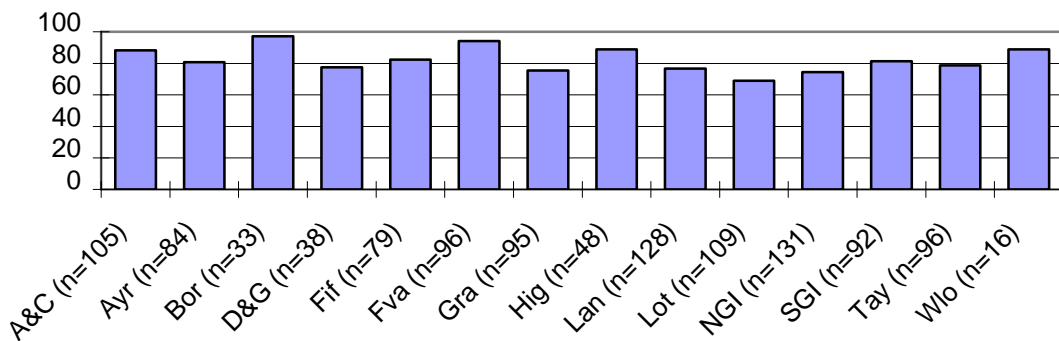
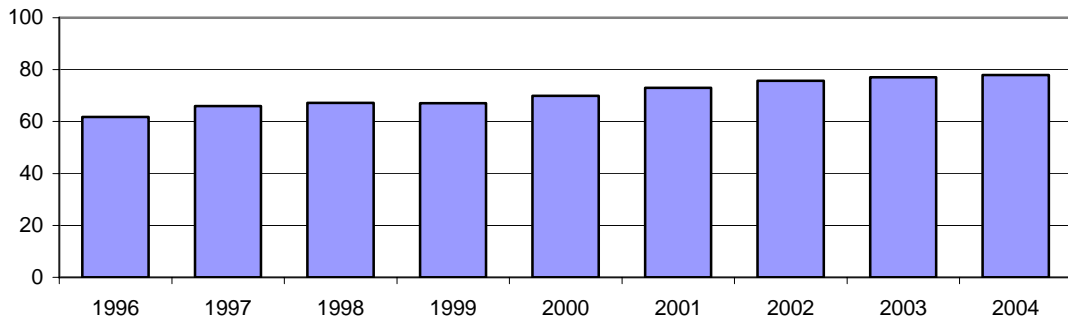


Figure 9

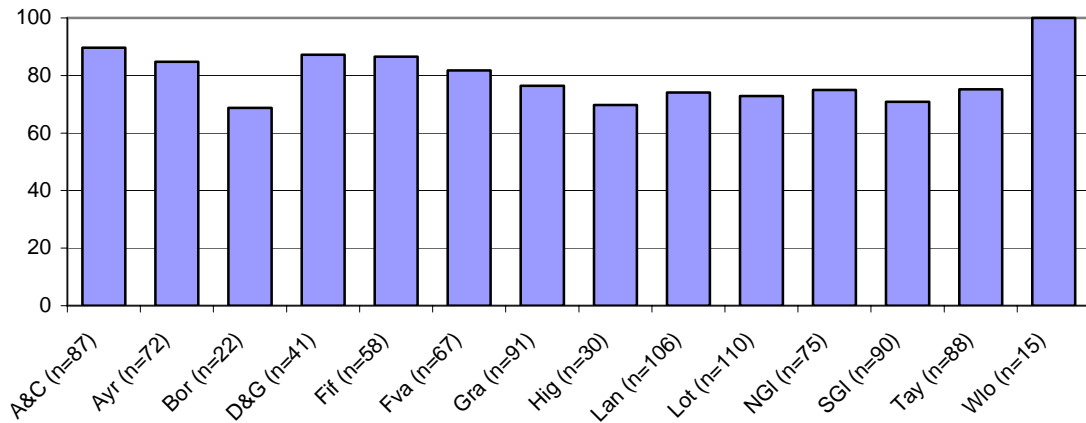
Consultant anaesthetist present at operation, by year



* This analysis excludes Terminal Care deaths to allow a comparison to be made over time

Figure 10

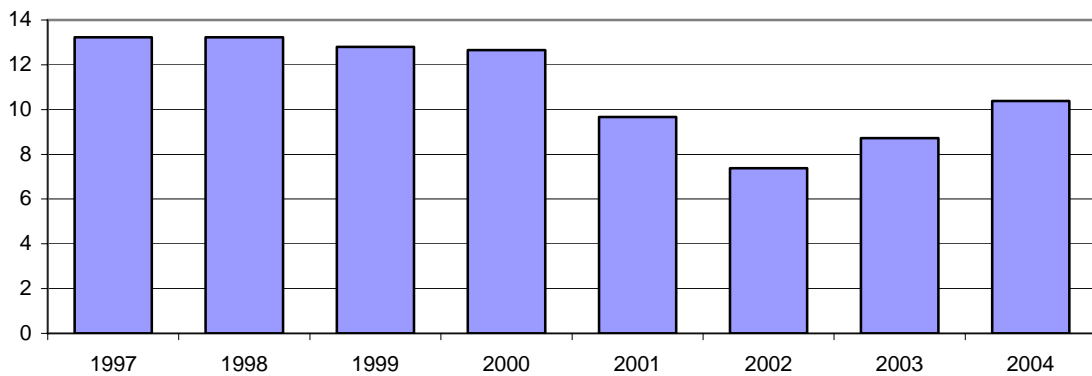
Consultant anaesthetist present at operation, by health board



* This analysis excludes Terminal Care deaths to allow a comparison to be made over time

Figure 11

Assessor said that post-operative care could have been improved, by year



* This analysis excludes Terminal Care deaths to allow a comparison to be made over time

Table 6 Median age and number of days to death where post-operative care could have been improved

Specialty	% of cases where post-op care could have been improved	Median age of deaths where post-op care could have been improved	Median days to death where post-op care could have been improved
ENT	8.33	72.00	17.50
General	7.62	74.50	12.00
Gynaecology	20.00	81.50	2.00
Maxillo-facial	33.33	82.00	15.00
Neurosurgery	3.19	57.00	13.00
Orthopaedics	17.41	85.00	9.00
Urology	13.56	78.00	19.00
Vascular	10.48	79.00	10.50

Figure 12

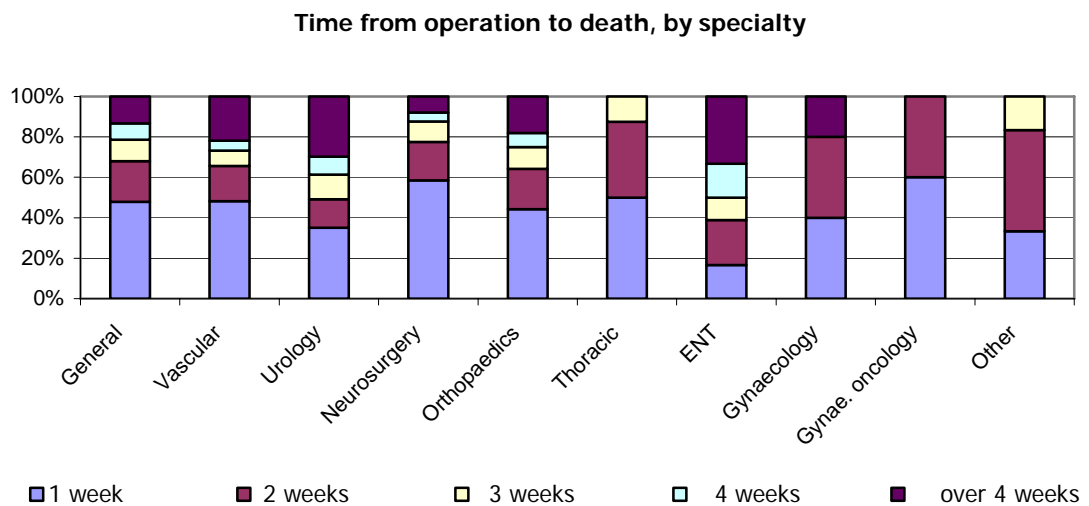
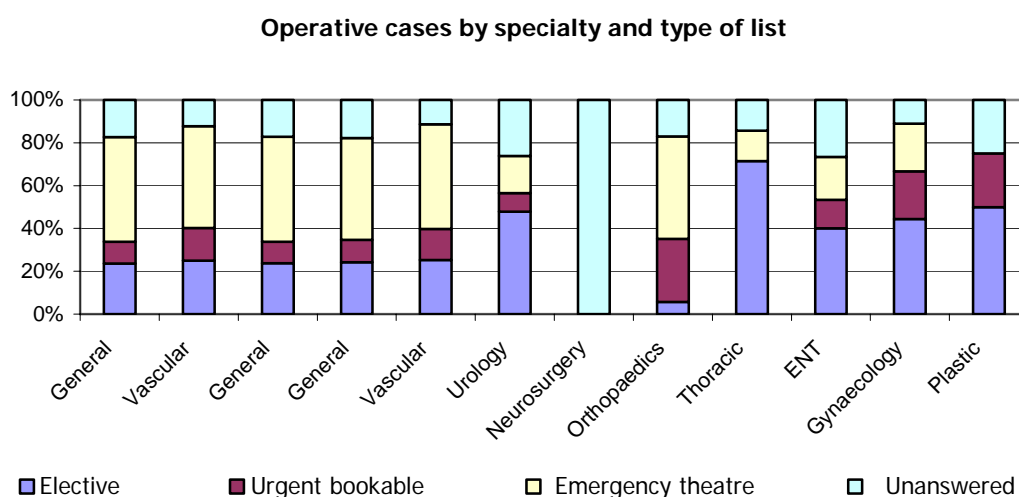


Table 7 **Most common ACONs where post-operative care could have been improved, orthopaedic cases only**

Code	Count	Description
WD1	11	Failure to use HDU
WE4	7	Unsatisfactory medical management
WA0	3	Delay in transfer to surgical unit
WE2	3	Operation should not have been done or was unnecessary
WE5	3	Hospital admission to wrong ward or specialty
WH1	3	Inadequate post-operative assessment
WA9	2	Delay in recognising complications
WC5	2	Poor documentation
WCA	2	Poor communication between physician and surgeon
W04	1	Respiratory tract
W70	1	Reaction to drugs
W75	1	Drug omission
W94	1	Diagnosis missed by medical unit
WA6	1	Delay to surgery ie earlier operation desirable
WAG	1	Delay starting medical treatment
WC0	1	Failure of communication - unspecified
WCG	1	Failure to report death to the Procurator Fiscal
WD4	1	Failure to use DVT prophylaxis
WE8	1	Incorrect use of drains or catheters
WEA	1	Duration of anaesthetic too long
WH2	1	Failure to investigate or assess patient fully
WJ0	1	Resuscitation inadequate
WK7	1	Patient handling

Figure 13



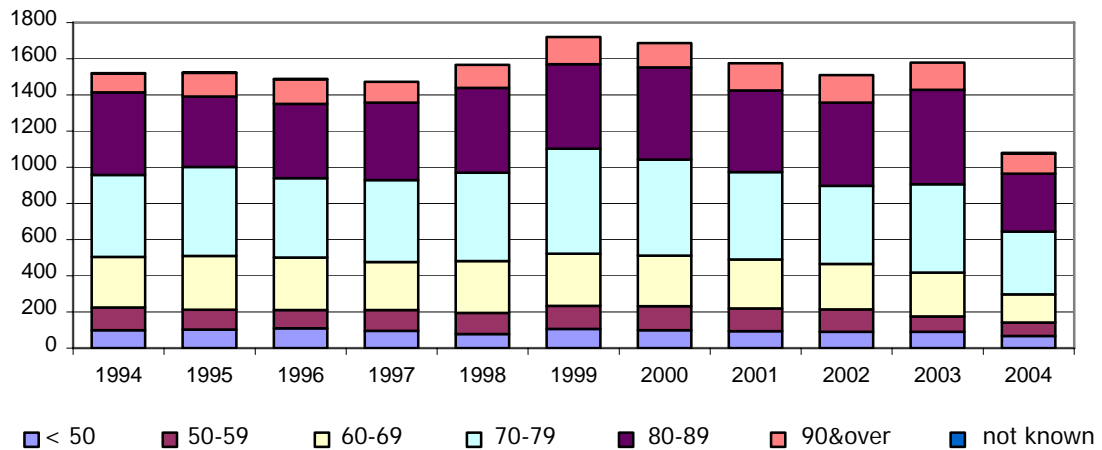
Emergency admissions

Table 8 **Surgical admissions (excluding day cases) in Scotland, by type of admission and year (data courtesy of ISD)**

Year	Elective	Emergency
1996	188,197	152,748
1997	178,646	154,564
1998	176,251	152,766
1999	166,458	153,215
2000	153,552	155,488
2001	147,233	153,976
2002	137,763	148,309
2003	132,210	142,539
2004	127,265	135,387

Figure 14

Number of operative deaths following emergency admission, by age

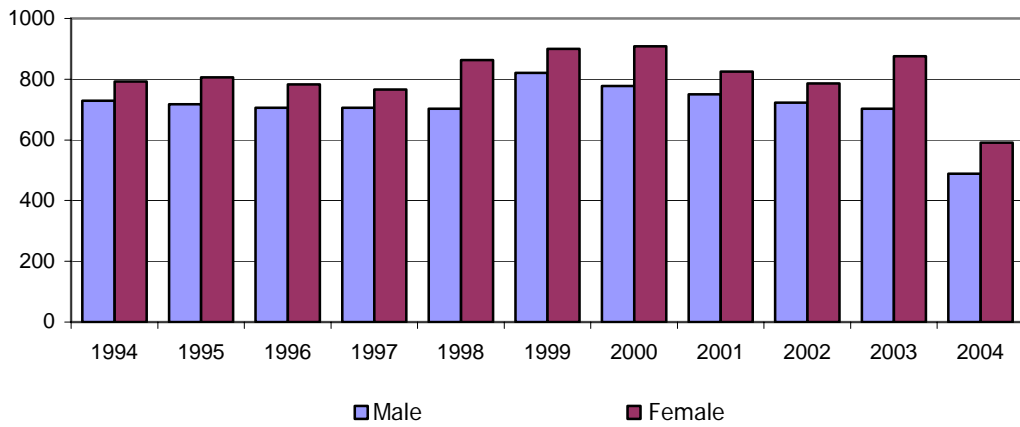


* This analysis excludes Terminal Care deaths to allow a comparison to be made over time

** In addition to elective and emergency, an urgent admission type was added in 2004. The number of operative deaths following urgent admission by age are: <50=9, 50-59=11, 60-69= 26, 70-79=58, 80-89=48, 90&over=6.

Figure 15

Number of operative deaths following emergency admission, by gender

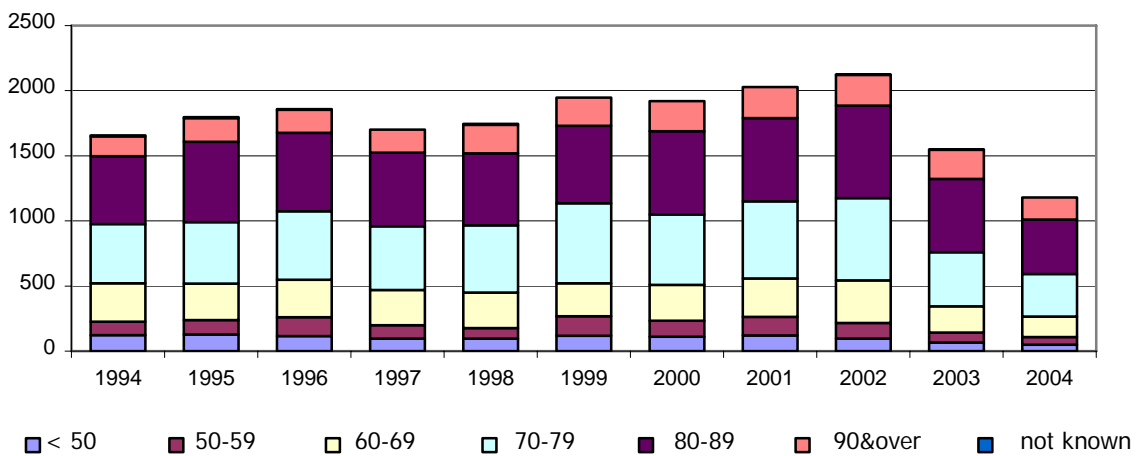


* This analysis excludes Terminal Care deaths to allow a comparison to be made over time

** In addition to elective and emergency, an urgent admission type was added in 2004. The number of operative deaths following urgent admission by gender are: male=65, female=93.

Figure 16

Number of non-operative deaths following emergency admission, by age

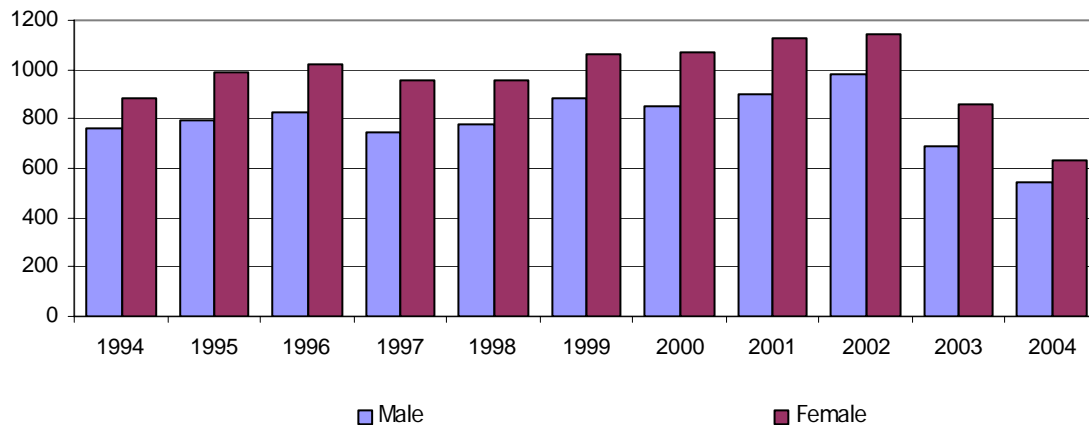


* This analysis excludes Terminal Care deaths to allow a comparison to be made over time

** In addition to elective and emergency, an urgent admission type was added in 2004. The number of non-operative deaths following urgent admission by age are: <50=1, 50-59=6, 60-69= 16, 70-79=36, 80-89=43, 90&over=15.

Figure 17

Number of non-operative deaths following emergency admissions, by gender



* This analysis excludes Terminal Care deaths to allow a comparison to be made over time

** In addition to elective and emergency, an urgent admission type was added in 2004. The number of non-operative deaths following urgent admission by gender are: male=50, female=67.

Table 9 Most common ACONs for emergency admissions

Code	Total	Description
WA6	43	Delay to surgery ie earlier operation desirable
WE5	34	Hospital admission to wrong ward or specialty
WD1	19	Failure to use HDU
WE2	19	Operation should not have been done or was unnecessary
WC5	18	Poor documentation
WE4	18	Unsatisfactory medical management
WA0	16	Delay in transfer to surgical unit
WHO	14	Pre-operative assessment inadequate
WE0	13	Wrong operation performed
WA2	12	Delay in transfer to surgeon by physicians
WC0	11	Failure of communication - unspecified
WA9	10	Delay in recognising complications
WGO	10	Inadequate monitoring
WC6	9	Failure to communicate with senior staff
WON	8	Miscellaneous complication
W94	8	Diagnosis missed by medical unit
WAF	8	Delay to diagnosis
WF1	8	Transfer should not have occurred
WDO	7	Failure to use ITU
WH1	7	Inadequate post-operative assessment
W92	6	Diagnosis missed by surgeons
WAC	6	Delay in investigating the patient
WB3	6	Anaesthetist too junior
W70	5	Reaction to drugs
W90	5	Diagnosis missed - unspecified
WDJ	5	Hospice not used
WF3	5	Transfer necessary to obtain ITU bed
WJ0	5	Resuscitation inadequate

WA8	5	Delay in obtaining blood products, xmatch or typing
W51	4	Regional anaesthetic complication
WAG	4	Delay starting medical treatment
WB	4	PROBLEMS WITH APPROPRIATE STAFFING
WCB	4	Poor communication from transferring to receiving hospital
WE1	4	Operation should have been done
WAL	3	Delay in referring from ICU to other staff
WBO	3	Failure of junior surgeon to seek advice
WB2	3	Surgeon too junior
WCA	3	Poor communication between physician and surgeon
WD4	3	Failure to use DVT prophylaxis
WF2	3	Transfer should have occurred
WH2	3	Failure to investigate or assess patient fully
W0	2	GENERAL COMPLICATIONS OF TREATMENT
W04	2	Respiratory tract
W0L	2	Wound problem
W17	2	Lower GI complication of open surgery
W1J	2	Skull/spine/bone/joint, Open surgery
W1L	2	Wound complication relating to open surgery
W1M	2	Peri-op bleeding problems after open surgery
W26	2	Upper GI complication of laparoscopic operation
W37	2	Lower GI complication after endoscopic operation
W50	2	General anaesthetic complications
W72	2	Wrong dose of drug used
W75	2	Drug omission
WB1	2	Failure of junior anaesthetist to seek advice
WB7	2	Anaesthetist should have been involved in preparation and resuscitation
WC	2	COMMUNICATION FAILURES
WH3	2	Pre-optimisation should have been used
WK0	2	Patient refused treatment
W	1	ADVERSE FACTORS IN MANAGEMENT
W06	1	Upper GI complication
W0M	1	Bleeding or coagulation problems not related to operative technique
W1	1	OPEN OPERATION/ORGAN RELATED TECHNICAL
W16	1	Upper GI complication of open surgery
W60	1	Failure of equipment
W61	1	Equipment not available
W9	1	DIAGNOSIS RELATED COMPLICATIONS
W91	1	Diagnosis missed by GP
WAK	1	Delay starting DVT prophylaxis
WB6	1	Surgeon operating outwith specialty
WC1	1	Poor communication between anaesthetist and surgeon
WCG	1	Failure to report death to the Procurator Fiscal
WD8	1	Failure to insert a drain
WDN	1	Failure to use body warming measures
WE3	1	Wrong anaesthetic technique
WE8	1	Incorrect use of drains or catheters
WEA	1	Duration of anaesthetic too long
WEB	1	Duration of operation too long
WEF	1	Premature withdrawal of treatment
WF0	1	Problems during transfer
WF4	1	Delay in transferring patient

WG	1	MONITORING PROBLEMS
WH	1	ASSESSMENT PROBLEMS
WK7	1	Patient handling

Table 10 Most common ACONs for emergency admissions with malignancy present

Code	Total	Description
WC5	5	Poor documentation
WA6	4	Delay to surgery ie earlier operation desirable
WE5	4	Hospital admission to wrong ward or specialty
WH0	4	Pre-operative assessment inadequate
WA0	3	Delay in transfer to surgical unit
WC0	3	Failure of communication - unspecified
WDJ	3	Hospice not used
W0	2	GENERAL COMPLICATIONS OF TREATMENT
W17	2	Lower GI complication of open surgery
W26	2	Upper GI complication of laparoscopic operation
W72	2	Wrong dose of drug used
W94	2	Diagnosis missed by medical unit
WD1	2	Failure to use HDU
WE0	2	Wrong operation performed
WF3	2	Transfer necessary to obtain ITU bed
W1M	1	Peri-op bleeding problems after open surgery
W37	1	Lower GI complication after endoscopic operation
W51	1	Regional anaesthetic complication
W90	1	Diagnosis missed - unspecified
WA9	1	Delay in recognising complications
WAC	1	Delay in investigating the patient
WAF	1	Delay to diagnosis
WC	1	COMMUNICATION FAILURES
WC6	1	Failure to communicate with senior staff
WCB	1	Poor communication from transferring to receiving hospital
WE2	1	Operation should not have been done or was unnecessary
WG	1	MONITORING PROBLEMS
WG0	1	Inadequate monitoring
WH	1	ASSESSMENT PROBLEMS
WH1	1	Inadequate post-operative assessment

Imaging

Table 11 **Number of deaths with delay to appropriate imaging**

Delay	n
Pre-op or post-op delay	28
Pre-op delay only	22
Post-op delay only	9
Pre-op and post-op delay	3

Figure 18

Number of deaths with delays to appropriate imaging, by health board

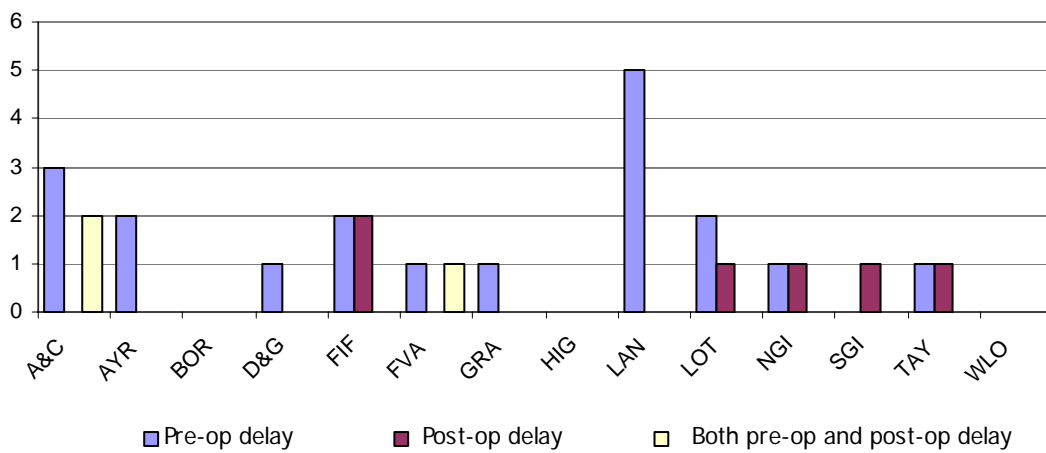


Figure 19

Number of deaths with delay to appropriate imaging, by speciality

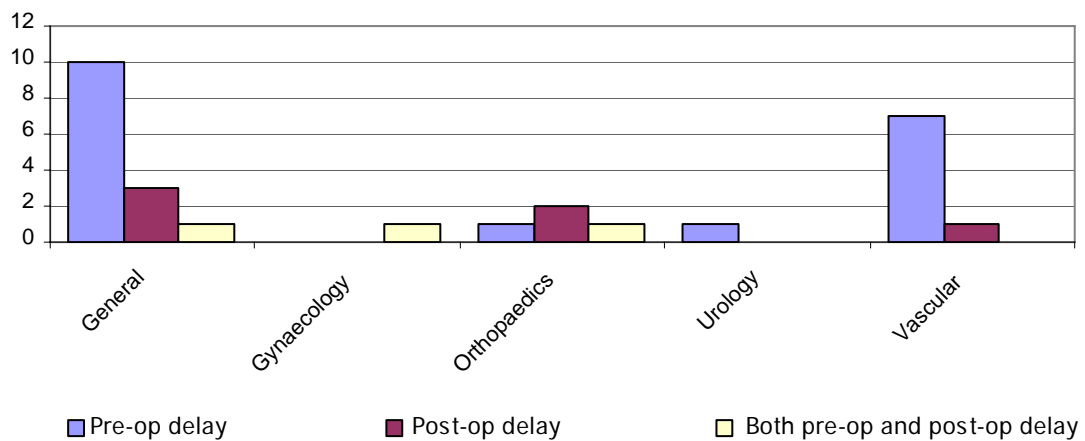
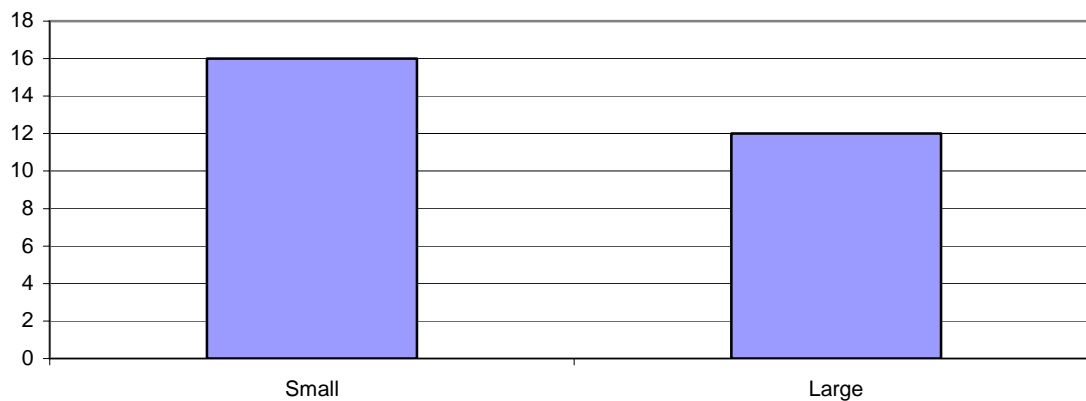


Table 12 Most common ACONs where there was a delay to appropriate imaging

Code	Total	Description
WAF	3	Delay to diagnosis
WA6	2	Delay to surgery ie earlier operation desirable
WHO	2	Pre-operative assessment inadequate
W92	1	Diagnosis missed by surgeons
W94	1	Diagnosis missed by medical unit
WA0	1	Delay in transfer to surgical unit
WAC	1	Delay in investigating the patient
WB0	1	Failure of junior surgeon to seek advice
WC0	1	Failure of communication - unspecified
WC1	1	Poor communication between anaesthetist and surgeon
WE4	1	Unsatisfactory medical management

Figure 20

Number of deaths where delay to appropriate imaging, by size of hospital*



* Small hospital refers to hospitals with <200 deaths (total deaths=2417)
 Large hospital refers to hospitals with >=200 deaths (total deaths=1174)

Hospital Acquired Infection (HAI)

Table 13 Number of patients who developed a HAI after transfer

Patient developed HAI	N
Total	296 (8.24% of audited deaths)
HAI contributed to or caused death	229
HAI didn't contribute or cause death	57
Unknown if HAI contributed to or caused death	10

Figure 21

Percentage of patients who had developed a HAI, by health board

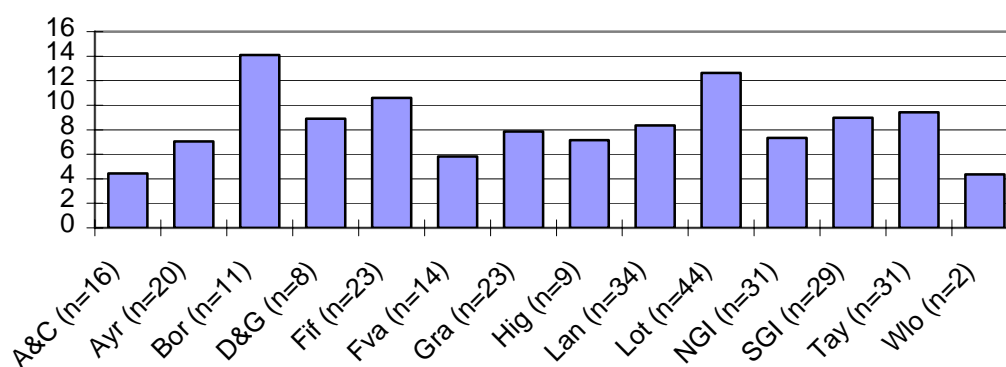


Table 14 Number of deaths where the patient was transferred with a HAI

Patient transferred with HAI	n
Total	56 (1.56% of audited deaths)
HAI contributed to or caused death	36
HAI didn't contribute or cause death	15
Unknown if HAI contributed to or caused death	5

Figure 22

Percentage of patients who were transferred with a HAI, by health board

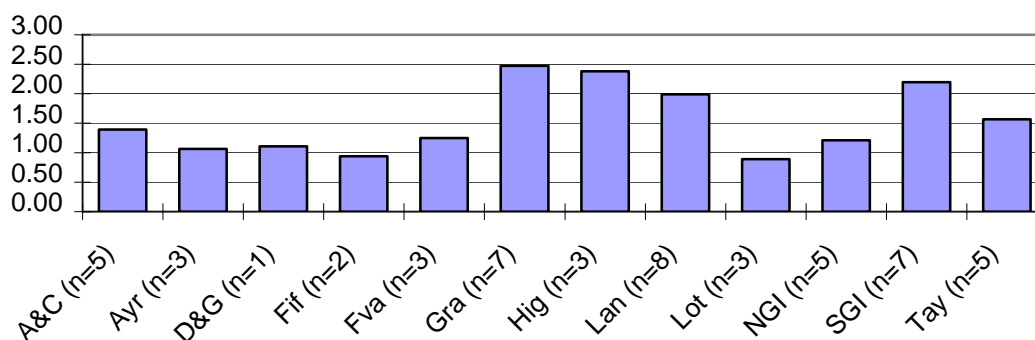


Figure 23

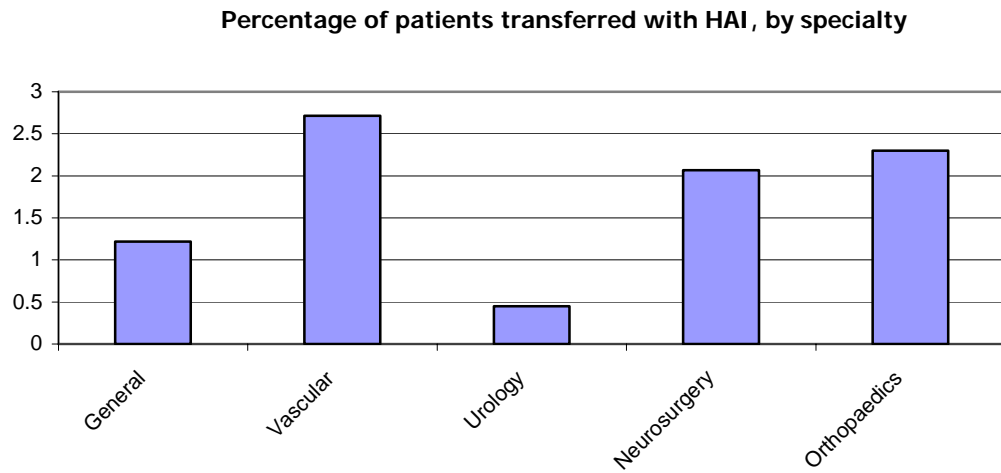


Table 15 **Number of deaths where patients were either transferred with a HAI or developed a HAI**

Patient either transferred with HAI or developed HAI	n (% of all audited deaths)
Total	338 (9.41%)
HAI either contributed to or caused death	251 (6.99%)

Figure 24

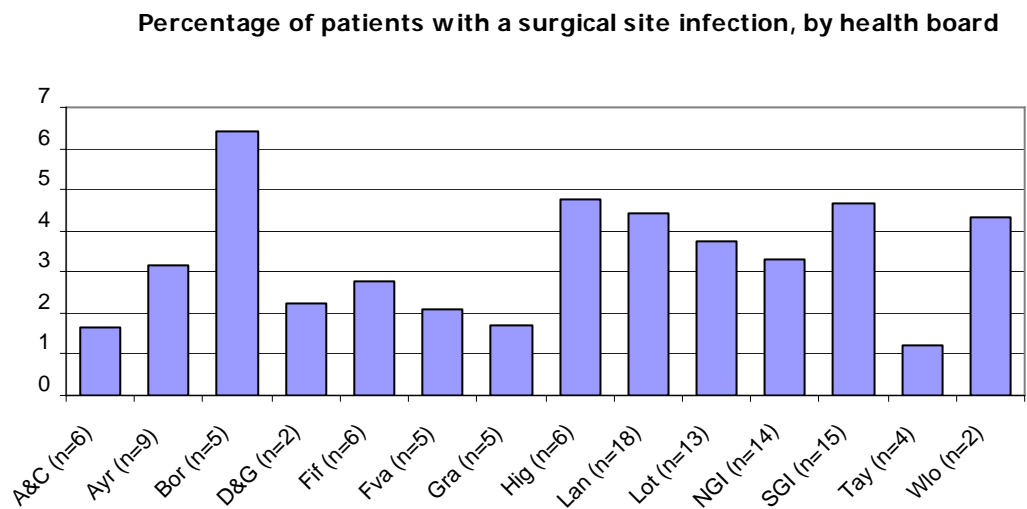


Figure 25

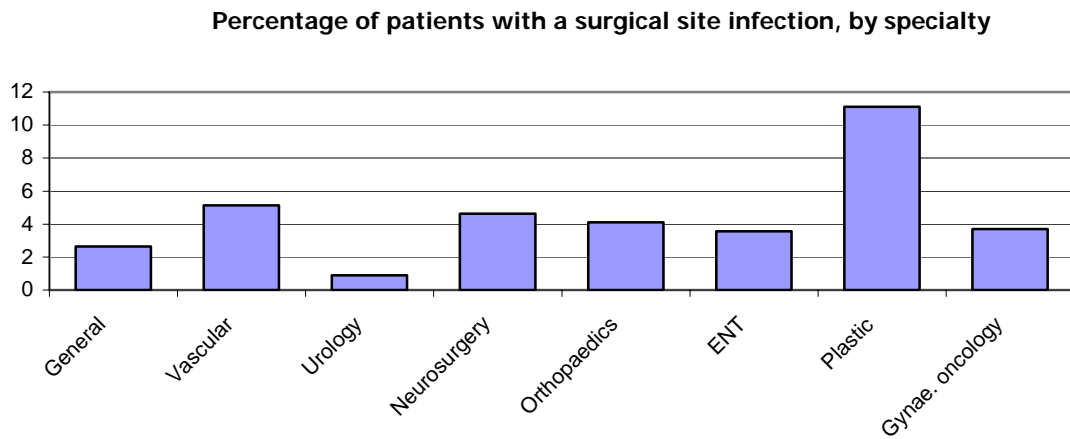


Figure 26

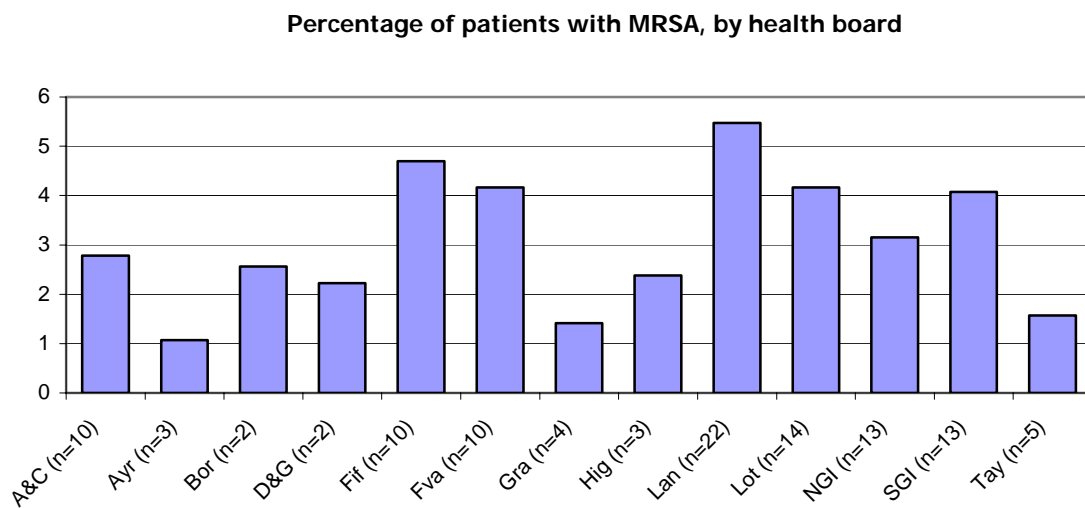


Figure 27

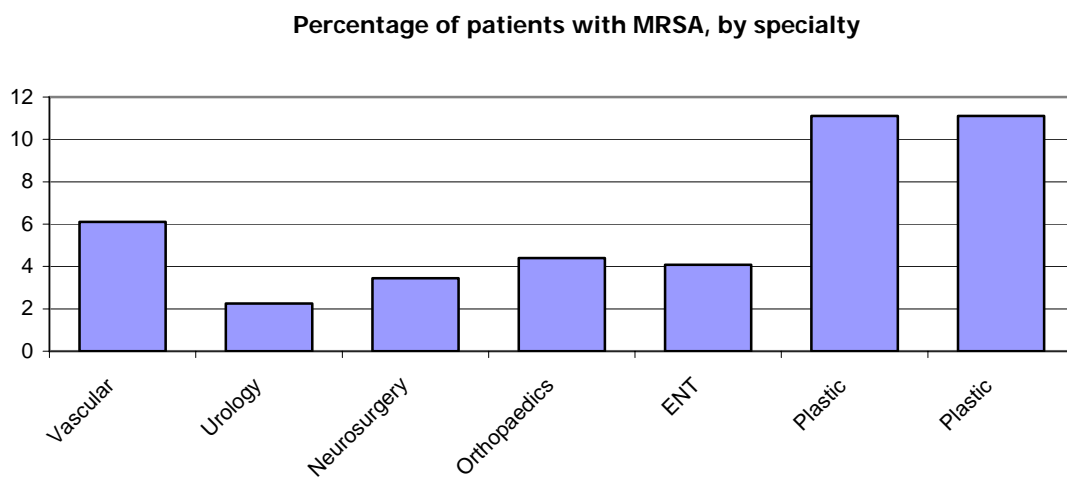


Figure 28

Percentage of patients with procedure related sepsis, by health board

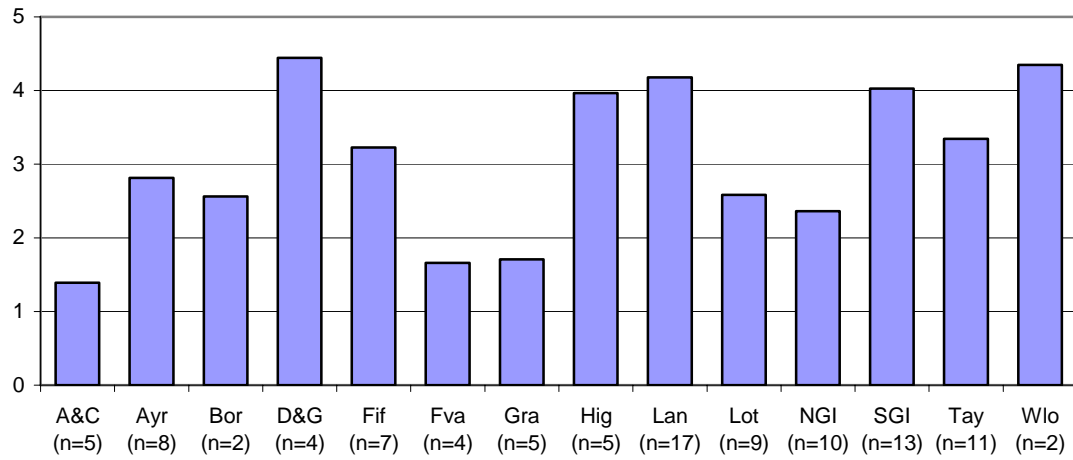


Figure 29

Percentage of patients with procedure related sepsis, by speciality

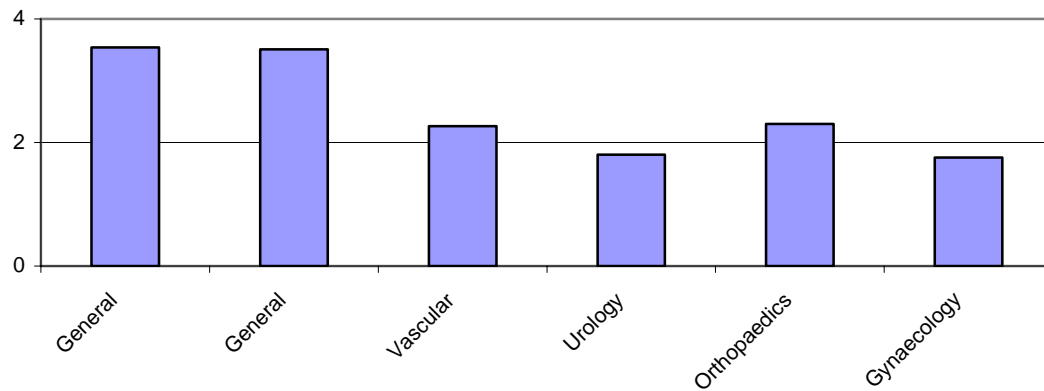


Figure 30

Percentage of patients with pulmonary sepsis, by health board

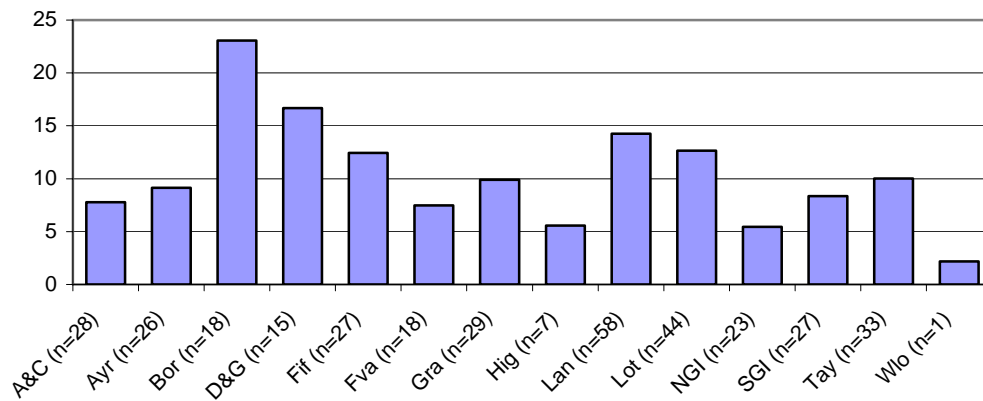
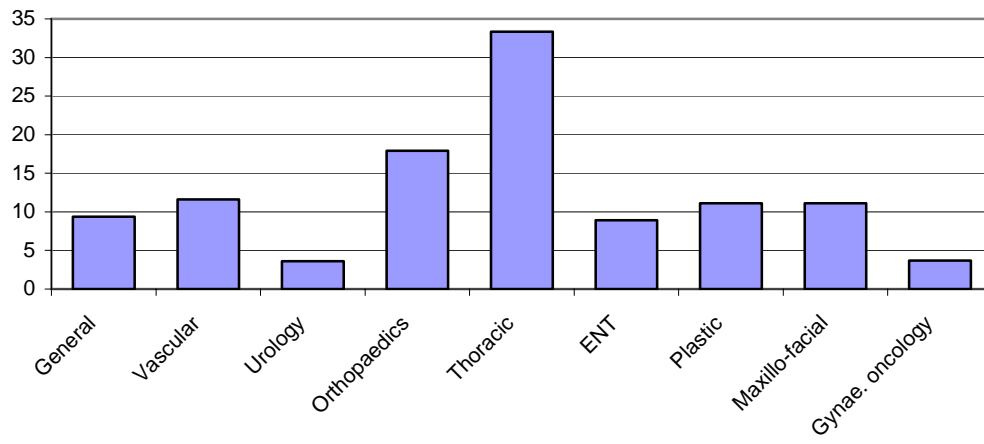


Figure 31

Percentage of patients with pulmonary sepsis, by specialty



Terminal Care Deaths*

* For definition, see page 24

Figure 32

Percentage of cases where surgeon believed patient was not appropriately placed to receive Terminal Care, by specialty

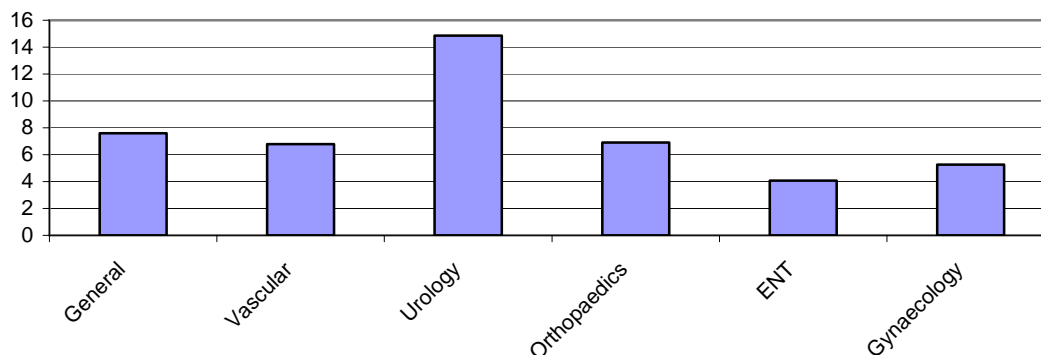
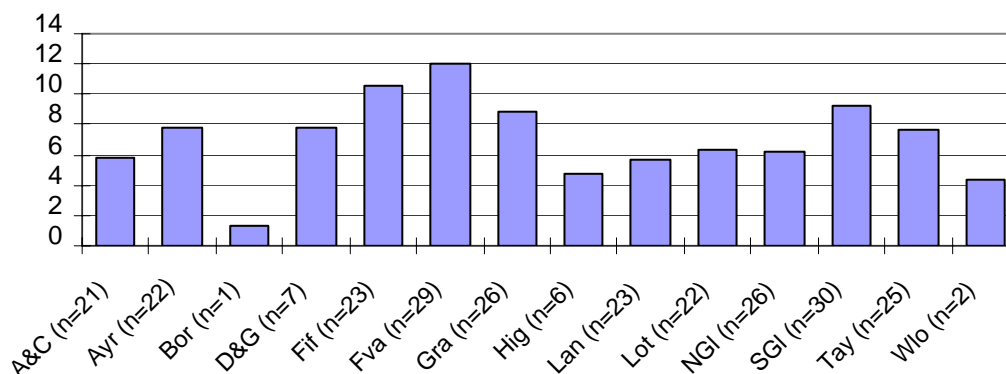


Table 16 **Number of patients not appropriately placed for TC, by specialty**

Specialty	No of cases where surg believed TC was not approp	Total audited deaths in specialty	Percent
General	159	2,091	7.60
Vascular	30	448	6.70
Urology	33	223	14.80
Orthopaedics	33	486	6.79
ENT	2	56	3.57
Gynaecology	3	57	5.26

Figure 33

Percentage of cases not appropriately placed for terminal care, by health board



Abbreviations

ACONs

ACONs are areas of concern or for consideration which are identified by the surgical or anaesthetic assessors (either first line or case note reviewers). An area of concern is where the assessor believes that areas of care should have been better. An area for consideration is where the assessor wishes to draw the clinician's attention to areas of care that he/she believes could have been improved, but recognises that it may be an area of debate. These ACONs are coded before being entered on the database. A maximum of three ACONs can be ascribed to each death by the surgical assessors and a maximum of three ACONs can be ascribed to each death by the anaesthetic assessors.

Health Boards

A&C	Argyll & Clyde
Ayr	Ayrshire & Arran
Bor	Borders
D&G	Dumfries & Galloway
Fif	Fife
Fva	Forth Valley
Gra	Grampian
Hig	Highland
Lan	Lanarkshire
Lot	Lothian
NGI	North Glasgow
Oth	Other
SGL	South Glasgow
Tay	Tayside
Wlo	West Lothian

Terminal Care

An admission for terminal care is an admission for the control of physical symptoms (e.g. pain) and of psychological, social and spiritual problems for patients whose disease is not responsive to curative treatment.