4. Surgery

Emergency Surgery >> The operation

Time of day

Figure 11 shows the time of day when the operation started and the outcome.

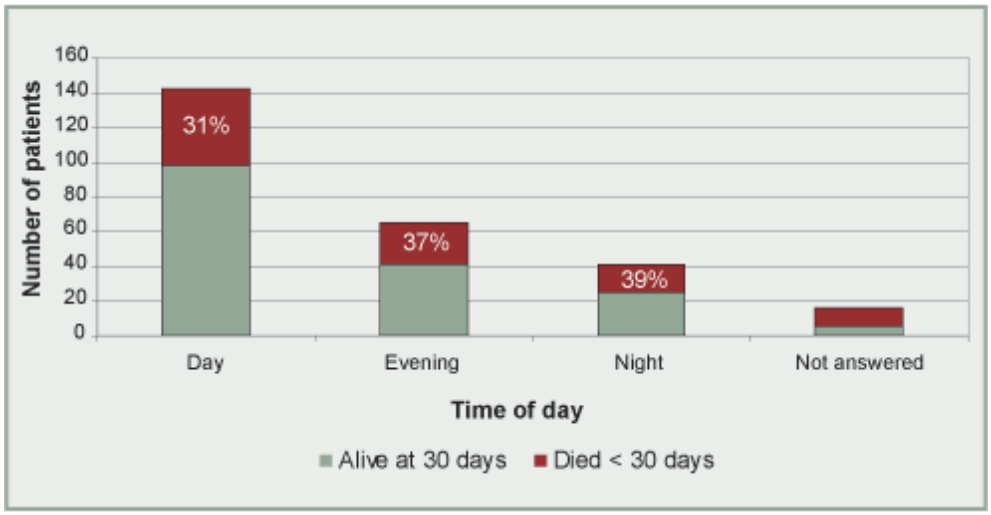

Figure 11. Time of day when operation started by outcome *n=264. Percentages refer to patients who died within 30 days.*

Emergency AAA is a procedure that must be done as soon as reasonably possible especially when patients are cardiovascularly unstable. The procedure may have to be undertaken at night which may cause a deleterious delay if senior staff have to come into the hospital. The differences were not great but there is an impression that the outcome was better when emergency AAA repair was carried out in the daytime. There may be a number of reasons for this but it is possible that patients admitted as an emergency at night with an unruptured aneurysm (with a lower risk of mortality than a ruptured AAA) may have been operated on the next morning, a possibility explored further in the next section.

Time to operation

Figure 12 shows the interval between the time when the decision to operate was taken and the time of incision.

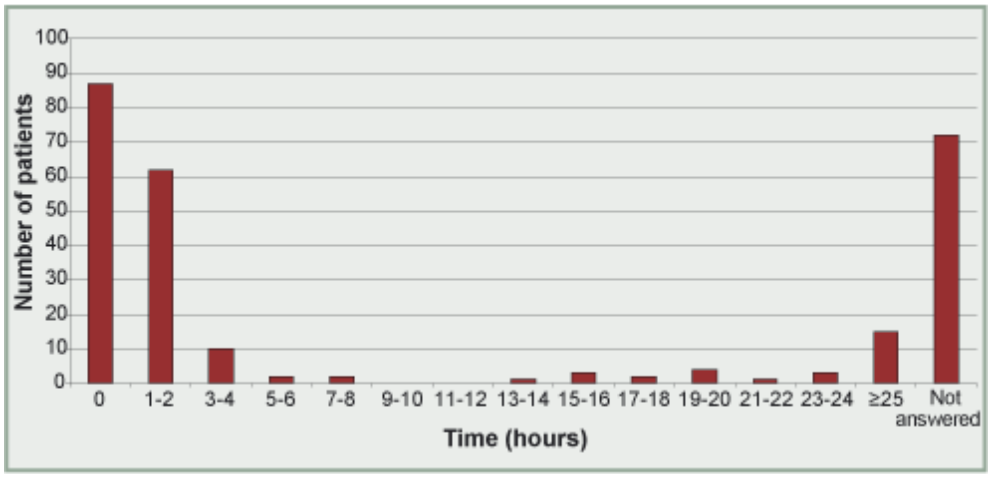

Figure 12. Time to operation from time decision was made to operate *n=264*

Some cases were delayed for many hours, indeed there appears to be a second cohort after a 12 hour interval. This may represent patients admitted in the evening or night with unruptured aneurysms whose operation was planned for the next day.
Data from 192 cases were available to calculate the interval to operation. In 78% (149/192) of cases the incision time was less than two hours after the decision to operate. The interval was over 25 hours in 15 cases.

Delays that prevented surgery at the time it was clinically indicated were reported in 8% (19/244) of cases. The cause of the delay was only supplied in three cases; in two cases the delay was due to lack of theatre resources and in one it was due to lack of critical care resources.

Length of operation - surgical time

The length of operation was calculated from the times given for incision and for closure. Figure 13 gives the range of surgical time, and the number of patients who died or were alive at 30 days. Overall, emergency cases were likely to take a shorter time than elective operations. Operations that were very short or very long often had an adverse outcome.

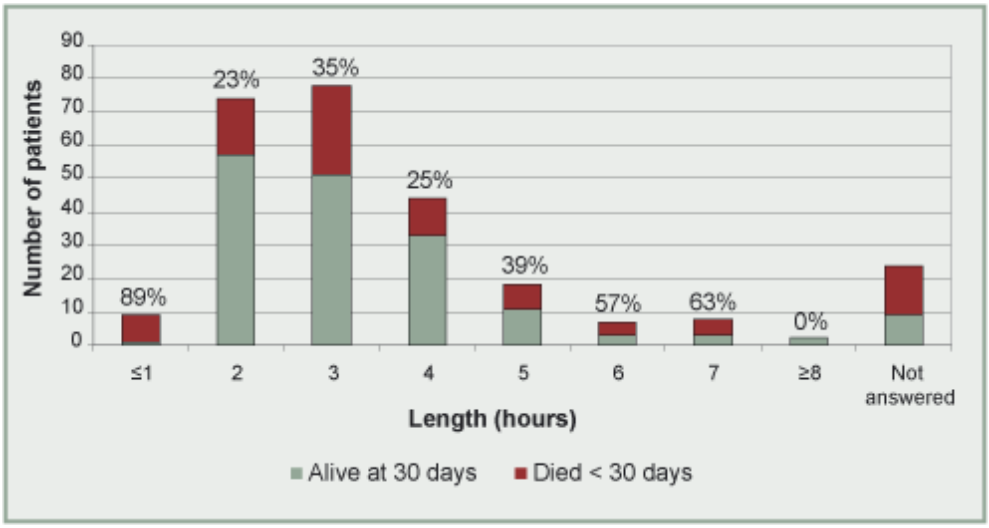

Figure 13. Length of operation *n=264. Percentages refer to patients who died in hospital within 30 days.*

Nearly three quarters of repairs (73%, 182/249) were done using a tube graft. This is a similar

proportion to that for elective repairs. 23 patients also underwent a thrombectomy/embolectomy and four a peripheral artery bypass.

Grade of surgeon

15 emergency operations were performed without a consultant surgeon present.

Data on the grade of the most senior operating surgeon present were returned for 254 out of the 264 emergency aneurysm repairs (Table 17).

Table 17. Grade of the most senior operating surgeon

Grade of surgeon	Total	%
Consultant	239	94
SpR year 3+	8	3
Other	7	3
Sub-total	**254**	
Not answered	10	
Total	**264**	

The data collected in this study did not include any information about how many emergency cases were started by a junior waiting for a consultant to arrive.

Fifteen AAA repairs were performed without a consultant present. Given the high mortality of this operation in the emergency setting it is surprising that even this small number were performed unsupervised. While the elective setting is an ideal opportunity for training, it is only the highly competent junior who could be left to do an emergency repair and it would seem reasonable to have a consultant nearby for advice and help. However, it is possible that a specialist registrar training in vascular surgery may be more competent than a consultant on-call who does no elective vascular surgery. To ensure availability of adequately trained surgeons to treat patients admitted as emergencies with AAA, Trusts may need to develop networks to provide this service and the number of Trusts admitting surgical emergencies may need to be reviewed. Models for delivering emergency vascular services have been proposed by the VSGBI [4].

Specialty of surgeon

16 emergency operations were performed by a surgeon without an elective vascular workload.

Surgeons were asked to report their surgical subspecialty. We received information for all but 12 cases (Table 18).

Table 18. Specialty of the most senior operating surgeon		
Specialty of surgeon	**Total**	**%**
Vascular surgeon	179	71
General surgeon with vascular interest	57	23
General surgeon with no vascular interest	8	3
Specialist surgeon	8	3
Sub-total	**252**	
Unknown	2	
Not answered	10	
Total	**264**	

94% (236/252) of patients were treated by surgeons with expertise in vascular surgery. Many of the operations must have been done in hospitals without a separate vascular on call rota, so the commitment by these surgeons is commendable.
However, 6% (16/252) of AAA repairs were performed by surgeons who had no special interest in vascular surgery or specifically had a special interest in another branch of surgery, for example, colorectal surgery. The mortality rate for vascular surgeons and surgeons with a vascular interest was 32% (76/236) and for general surgeons and surgeons with another specialist interest it was 50% (8/16).

It is highly unsatisfactory that patients presenting with a major vascular emergency received their treatment from a consultant surgeon who did not do vascular surgery as a regular part of their elective work. NCEPOD has no information as to what information patients were given as part of the consent process before operation. One should also understand the anxieties of the surgeons involved, who recognise the limitations of their expertise in vascular surgery, yet have to do the best they can for the patient because those are the circumstances in which they find themselves. This is increasingly a problem for other subspecialties of general surgery in the emergency setting.

The situation regarding availability of vascular surgeons is constantly changing and it should be borne in mind that these data were collected in the spring of 2004, 18 months before the publication of this report. Yet, at the time of writing there were insufficient vascular surgeons nationally to provide specialist care for all emergency admissions. Even with the planned expansion of consultant numbers there will be too few vascular specialists for all hospitals accepting surgical emergencies to provide a specialist vascular service. The question remains; how best can we provide care for a patient admitted as an emergency with an AAA? Solutions may include the transfer of patients to nearby units with vascular surgeons available; directing admissions to appropriate units in the first place; and surgeons who can travel and cover additional hospital sites. There will be exceptional geographical circumstances where it may be very difficult to ensure timely access to a surgeon with vascular expertise. In all other areas, Strategic Health Authorities and Trusts should co-operate to provide a service for patients such that only surgeons with vascular expertise operate on emergency aortic aneurysm patients.

Membership of the Vascular Society and outcome

The data have been analysed as to whether there was any difference in outcome between operations performed by surgeons who were and who were not members of the VSGBI. Because so many surgeons chose not to answer this question one must be cautious about the significance of the better survival associated with operation by a member of the VSGBI.

Table 19. Surgeon's membership of the VSGBI and outcome				
Member of VSGBI	**Died within 30 days**	**% died within 30 days**	**Alive at 30 days**	**Total**
Yes	26	35	49	**75**
No	9	45	11	**20**
Sub-total	**35**		**60**	**95**
Unknown	2		0	**2**
Not answered	57		110	**167**
Total	**94**		**170**	**264**