ABDOMINAL AORTIC ANEURYSM STUDY
National Confidential Enquiry into Patient Outcome and Death (NCEPOD)

SURGICAL QUESTIONNAIRE

CONFIDENTIAL

Hospital Number of patient

Name of Local Reporter

What is this study about?
NCEPOD will be reviewing clinical and organisational issues in the delivery of care to patients who undergo repair of Abdominal Aortic Aneurysms (AAAs), and also patients that are diagnosed with an AAA and die in hospital not having received surgery. Data will be collected for a two-month period from all sites across England, Wales, Northern Ireland, Isle of Man, Guernsey, Defence and the Independent sector. Elective and emergency procedures (conventional and endovascular) carried out by vascular surgeons, general surgeons and interventional radiologists will be included.

This work is supported by the Vascular Surgical Society of Great Britain and Ireland (VSSGBI), the Vascular Anaesthetic Society of Great Britain and Ireland (VASGBI) and the Royal College of Radiologists.

NCEPOD and the National Vascular Database
Some vascular surgeons contribute to the National Vascular Database. This study will address the care of AAA patients across all specialities and include those that are not operated on.

Inclusion Criteria for this study:
All adults (≥16 years of age) who either:
• underwent elective or emergency AAA repair (conventional or endovascular) between 1st Feb and 31st March 2004 inclusive. (OPCS Codes: L18.3, L18.4, L18.5, L18.6, L18.8, L18.9, L19.3, L19.4, L19.5, L19.6, L19.8, L19.9) OR
• were admitted with a primary diagnosis of AAA between 1st Feb and 31st March 2004 inclusive but did not undergo surgery and subsequently died in hospital during the same hospital episode (ICD10 codes: I71.0, I71.3, I71.4, I71.8, I71.9).

Specific exclusions are:
Repeat operations for AAA repairs that are for complications of a previous operation coded as one of the following OPCS codes: L18.3, L18.4, L18.5, L18.6, L18.8, L18.9, L19.3, L19.4, L19.5, L19.6, L19.8, L19.9.

Please indicate a repeat operation under ‘Inclusion criteria’ overleaf and return the questionnaire to the NCEPOD Local reporter.

Who should complete this questionnaire?
This questionnaire should be completed by the consultant surgeon who either
• performed an AAA repair on the patient identified above (conventional or endovascular)
• was involved with the care of a patient who underwent endovascular AAA repair or
• was involved in the diagnosis of a patient with an AAA who was not subsequently operated on.

Questions or help
If you have any queries about the study or this questionnaire, please contact NCEPOD at AAA@ncepod.org.uk or Tel: 020 7920 0999

Thank you for taking the time to complete this questionnaire. The findings of the study will be published in late 2005.
Inclusion Criteria – Please cross the box that applies to this patient

**NON-OPERATIVE PATIENTS**

☐ If the patient was **not operated on** ⇒ please complete Sections ABCD, FG and L

**OPERATIVE PATIENTS**

Had this patient undergone previous repair or stenting for an AAA?

☐ **YES** ⇒ This questionnaire should not be completed, please return it to the local reporter

☐ **NO**, the patient underwent conventional AAA repair ⇒ please complete **All sections**

☐ **NO**, the patient underwent endovascular AAA repair ⇒ please complete Sections ABCDEFG and KL

### A - THE PATIENT

1. Age on admission
   - [ ]
   - [ ]
   - [ ]
   - (Patients <16 years are excluded)

2. Gender
   - [ ] Male
   - [ ] Female

### B - ADMISSION DETAILS

3. Date of admission
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - (dd mm yy)

4. Time of admission
   - [ ]
   - [ ]
   - [ ]
   - [ ]
   - (Please use 24 hour clock)

5. Mode of admission
   - [ ] Elective
   - [ ] Emergency
   - [ ] Elective Transfer
   - [ ] Emergency Transfer
   - *(See definitions at end of questionnaire)*

### C - CO-MORBIDITIES AND RISK FACTORS

6. Build
   - [ ] Morbid obesity (BMI>35)
   - [ ] Normal
   - [ ] Cachexia
   - [ ] Unknown
   - *(Please cross ALL that apply)*

7. Cardiac signs
   - [ ] None
   - [ ] Peripheral oedema
   - [ ] Pulmonary oedema
   - [ ] Raised JVP/high CVP
   - [ ] Other
   - [ ] Unknown
8. Cardiac history
(See definitions at end of questionnaire)

- None
- Angina – controlled/on exertion
- Angina – uncontrolled/at rest
- Heart failure - treated within the last month
- Heart failure >1 month ago
- Hypertension
- MI/Cardiac arrest during this admission and prior to surgery
- MI 0 – 2 months ago
- MI >2 months ago
- Orthopnoea
- Other
- Unknown

9. Respiratory history
(See definitions at end of questionnaire)

- None
- Dyspnoea on exertion
- Dyspnoea at rest
- Other
- Unknown

10. Any diagnosed diabetes

- Yes
- No
- Unknown

11. Medication

- None
- For angina
- For heart failure
- For hypertension
- Steroids
- Warfarin
- Other
- Unknown
### D - EXAMINATION AND INVESTIGATION AT ADMISSION

12. Aneurysm
   - [ ] Ruptured: Retroperitoneal
   - [ ] Ruptured: Intraperitoneal
   - [ ] Unruptured: Symptomatic and/or tender
   - [ ] Unruptured: Asymptomatic
   - [ ] Undiagnosed until laparotomy
   - [ ] Unknown

13. ECG
   - [ ] Normal
   - [ ] AF (rate >90)
   - [ ] Other abnormality
   - [ ] Unknown

14. Glasgow coma score
   - [ ] Fully conscious (15)
   - [ ] Intermediate (9-14)
   - [ ] Unconscious (3-8)
   - [ ] Unknown

**Please cross ALL the apply**

15. Imaging
   - [ ] Angiography
   - [ ] CT
   - [ ] MRI
   - [ ] Ultrasound
   - [ ] None of the above
   - [ ] Unknown

### E - ELECTIVE CASES  
*For emergency cases, please go to section F*

16. Date patient placed on waiting list for AAA surgery
   
   | d | d | m | m | y | y |
   |

17. a Was a previous AAA repair cancelled due to lack of ward beds?
   - [ ] Yes
   - [ ] No
   - [ ] Unknown

   b Was a previous AAA repair cancelled due to lack of available critical care beds?
   - [ ] Yes
   - [ ] No
   - [ ] Unknown
18. a Did the patient attend a preoperative assessment clinic?  [ ] Yes  [ ] No  [ ] Unknown
   *If No, please go to section G, pg 7*

b If YES, who assessed the patient? *(Please cross ALL that apply)*

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<thead>
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<tbody>
<tr>
<td>1</td>
<td>Consultant anaesthetist</td>
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<tr>
<td>2</td>
<td>Consultant surgeon</td>
</tr>
<tr>
<td>3</td>
<td>Associate Specialist anaesthetist</td>
</tr>
<tr>
<td>4</td>
<td>Staff Grade anaesthetist</td>
</tr>
<tr>
<td>5</td>
<td>Associate Specialist surgeon</td>
</tr>
<tr>
<td>6</td>
<td>Staff Grade surgeon</td>
</tr>
<tr>
<td>7</td>
<td>Nurse practitioner</td>
</tr>
<tr>
<td>8</td>
<td>SpR anaesthetist year 3+</td>
</tr>
<tr>
<td>9</td>
<td>SpR anaesthetist year 1/2</td>
</tr>
<tr>
<td>10</td>
<td>SpR surgeon year 3+</td>
</tr>
<tr>
<td>11</td>
<td>SpR surgeon year 1/2</td>
</tr>
<tr>
<td>12</td>
<td>SHO anaesthetist</td>
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<tr>
<td>13</td>
<td>SHO surgeon</td>
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<tr>
<td>14</td>
<td>HO surgeon</td>
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<tr>
<td>15</td>
<td>Other</td>
</tr>
<tr>
<td>16</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Please go to section G, pg 7

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**F - EMERGENCY CASES**

19. a Prior to this hospital admission, was the patient known to have an AAA?  [ ] Yes  [ ] No  [ ] Unknown

b If YES,

i Was the patient on the waiting list for elective surgical AAA repair?  [ ] Yes  [ ] No  [ ] Unknown

ii Was the patient on the waiting list for elective endovascular AAA repair?  [ ] Yes  [ ] No  [ ] Unknown

iii Was the patient found unsuitable for elective repair?  [ ] Yes  [ ] No  [ ] Unknown

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20. Information about the consultant surgeon responsible for the decision to operate or not (the admitting surgeon)

a Is the admitting surgeon a member of the Vascular Surgical Society of Great Britain & Ireland  [ ] Yes  [ ] No  [ ] Unknown

b How many AAA repairs did the admitting surgeon perform in the year April 2002 – March 2003?

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>Emergency</td>
<td></td>
</tr>
</tbody>
</table>

   i Where was this information obtained?
   1 Log book/information system
   2 Memory

   c Does the admitting surgeon contribute data to the National Vascular Database?  [ ] Yes  [ ] No  [ ] Unknown
21. What was the patient’s primary diagnosis?

1. Dissecting aneurysm of aorta (ruptured) [any part] (OPCS code I71.0)
2. Abdominal aortic aneurysm, ruptured (OPCS code I71.3)
3. Abdominal aortic aneurysm, without mention of rupture (OPCS code I71.4)
4. Aortic aneurysm of unspecified site, ruptured (Rupture of aorta NOS) (OPCS code I71.8)
5. Aortic aneurysm of unspecified site, without mention of rupture (OPCS code I71.9)

22. Based on the primary diagnosis, was a decision made to operate or to treat by endovascular repair?  

☐ Yes
☐ No, palliative care only

*If NO, please go to section G, pg 7*

23. 

a. Date of decision to operate or to treat by endovascular repair

```
  d  d  m  m  y  y
```

b. Time of decision to operate or to treat by endovascular repair

```
  h  h  m  m
```

24. 

a. Did surgery occur after a decision was made to operate?  

☐ Yes  ☐ No  ☐ Unknown

b. If No, please state reason

*Please cross ALL that apply*

   1. Sudden deterioration of patient
   2. Deterioration in patient’s condition whilst imaging taking place
   3. Deterioration in patient’s condition whilst waiting for access to theatre
   4. Deterioration in patient’s condition whilst waiting for appropriate grade of anaesthetist
   5. Deterioration in patient’s condition whilst waiting for appropriate grade of surgeon
   6. Deterioration in patient’s condition whilst arranging transfer
   7. Profound deterioration during induction of anaesthesia
   8. Decision taken as a result of discussion with patient and/or relatives
   9. Other
   10. Unknown

*Please go to section G, pg 7*
25. a Were there any delays to surgery?  
  i.e. you were not able to operate when clinically required
  [ ] Yes  [ ] No  [ ] Unknown

  *Please cross **ALL** that apply*

  b If **YES**, what were the delays due to?
  1. Lack of theatre resources
  2. Lack of anaesthetic resources
  3. Lack of surgical resources
  4. Lack of blood products
  5. Lack of critical care resources
  6. Other
  7. Unknown

**PREOPERATIVE RESULTS:** measurements taken as close as possible to the time of the decision to operate

<table>
<thead>
<tr>
<th>26.</th>
<th>Lowest systolic blood pressure</th>
<th>1 mmHg</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.</td>
<td>Highest pulse rate</td>
<td>2 min⁻¹</td>
<td>Unknown</td>
</tr>
<tr>
<td>28.</td>
<td>Lowest oxygen saturation</td>
<td>3 %</td>
<td>Unknown</td>
</tr>
<tr>
<td>29.</td>
<td>Anuric between admission and decision to operate?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**G - PREOPERATIVE LABORATORY INVESTIGATIONS**  
* (Elective and Emergency patients)  
measurements taken as close as possible to operation

<table>
<thead>
<tr>
<th>30.</th>
<th>Haemoglobin</th>
<th>1 g dl⁻¹</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.</td>
<td>White blood cell count</td>
<td>2 × 10⁹ l⁻¹</td>
<td>Unknown</td>
</tr>
<tr>
<td>32.</td>
<td>Urea</td>
<td>3 mmol l⁻¹</td>
<td>Unknown</td>
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<tr>
<td>33.</td>
<td>Creatinine</td>
<td>4 µmol l⁻¹</td>
<td>Unknown</td>
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<tr>
<td>34.</td>
<td>Sodium</td>
<td>5 mmol l⁻¹</td>
<td>Unknown</td>
</tr>
<tr>
<td>35.</td>
<td>Potassium</td>
<td>6 mmol l⁻¹</td>
<td>Unknown</td>
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<tr>
<td>36.</td>
<td>Albumin</td>
<td>7 g dl⁻¹</td>
<td>Unknown</td>
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<tr>
<td>37.</td>
<td>INR (within 24 hours of surgery)</td>
<td>8</td>
<td></td>
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*For non-operative patients, please go to section L, pg 11*
### H - THE OPERATION
(Do not complete if patient was not operated on or if AAA repair was endovascular)

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<tbody>
<tr>
<td>38. Date of operation</td>
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<tr>
<td>39. Classification of surgery</td>
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<tr>
<td>1</td>
<td>Elective</td>
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<td>2</td>
<td>Scheduled</td>
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<td>3</td>
<td>Urgent</td>
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<td>4</td>
<td>Emergency</td>
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<td>5</td>
<td>Unknown</td>
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### 40. a Surgical start time – incision

Please use 24 hour clock

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<tr>
<td></td>
<td>h</td>
<td>h</td>
<td>m</td>
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b If the start time occurred between 00:00 (midnight) and 08:00, were there any problems with availability of surgical assistance?

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<td></td>
<td>Yes</td>
<td>No</td>
<td>Unknown</td>
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### 41. Finish time – closure

Please use 24 hour clock

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Please cross **ALL** that apply

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<tbody>
<tr>
<td></td>
<td>Peripheral artery bypass</td>
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<tr>
<td></td>
<td>Thrombectomy/embolectomy</td>
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<tr>
<td></td>
<td>Other vascular procedures</td>
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<tr>
<td></td>
<td>Other non-vascular procedures</td>
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<td></td>
<td>None of the above</td>
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<td>Unknown</td>
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### 42. Were any of the following procedures completed during the same theatre visit?

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<td></td>
<td>Sub-diaphragmatic</td>
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<tr>
<td></td>
<td>Supra-renal</td>
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<tr>
<td></td>
<td>Infra-renal</td>
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<td>Unknown</td>
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### 43. Position of aortic clamp

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<td>Sub-diaphragmatic</td>
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<td>Supra-renal</td>
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<td>Infra-renal</td>
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<td>Unknown</td>
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### 44. AAA repair

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<tbody>
<tr>
<td></td>
<td>Tube</td>
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<tr>
<td></td>
<td>Bifurcated – intraperitoneal</td>
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<tr>
<td></td>
<td>Bifurcated – groin</td>
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<td>Other</td>
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<td>Unknown</td>
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</table>
I - THE SURGEON
(Do not complete if patient was not operated on or if AAA repair was endovascular)

45. Grade of most senior operating surgeon
   1  Consultant
   2  Associate Specialist
   3  Staff Grade
   4  SpR year 3+
   5  SpR year 1/2
   6  SHO
   7  Other
   8  Unknown

46. Specialty of most senior operating surgeon
   1  Vascular surgeon
   2  General surgeon with vascular interest
   3  General surgeon with NO vascular interest
   4  Specialist surgeon (e.g. colorectal)
   5  Unknown

If the admitting surgeon (Q. 20) and the most senior operating surgeon are the same, Q.47 may be left blank.

47. a How many AAA repairs did the most senior operating surgeon perform in the year April 2002 - March 2003?
   1  Elective
   2  Emergency
   3  Unknown

   i Where was this information obtained?
   1  Log book/information system
   2  Memory

   b Is the senior surgeon a member of the Vascular Surgical Society of Great Britain & Ireland?
   1  Yes
   2  No
   3  Unknown

J - OPERATIVE DETAILS
(Do not complete if patient was not operated on or if AAA repair was endovascular)

48. Aortic findings
   (See definitions at end of questionnaire)
   1  Unruptured: Standard atherosclerotic aneurysm
   2  Unruptured: Infected aneurysm
   3  Unruptured: Inflammatory aneurysm
   4  Ruptured: Intraperitoneal
   5  Ruptured: Retroperitoneal haematoma/tamponade
   6  Ruptured: Inflammatory
### K - POSTOPERATIVE COMPLICATIONS WITHIN 30 DAYS OF SURGERY

#### 49. Graft/anastomotic complications
- e.g. haemorrhage, occlusion, infection
  - 1. Please cross **ALL** that apply
  - 2. Amputation
  - 3. Medical intervention
  - 4. Returned to theatre/radiology suite
  - 5. Other
  - 6. Unknown

#### 50. Limb ischaemia
- e.g. embolus, trash foot, compartment syndrome (not graft complication)
  - 1. None
  - 2. Amputation
  - 3. Medical intervention
  - 4. Returned to theatre/radiology suite
  - 5. Other
  - 6. Unknown

#### 51. Infection
  - (See definitions at end of questionnaire)
  - 1. None
  - 2. Chest
  - 3. Graft
  - 4. Intra-abdominal
  - 5. Pyrexia of unknown origin
  - 6. Septicaemia
  - 7. Urinary tract
  - 8. Wound
  - 9. Other
  - 10. Unknown

#### 52. Stroke
  - (See definitions at end of questionnaire)
  - 1. None
  - 2. Yes, non-disabling
  - 3. Yes, disabling
  - 4. Other
  - 5. Unknown

#### 53. Post-operative paraplegia
  - Yes  No  Unknown

#### 54. Myocardial infarct
  - Yes  No  Unknown

#### 55. Ischaemic bowel
  - (See definitions at end of questionnaire)
  - Yes  No  Unknown
56. Impaired renal function
   1. None
   2. Urea >5mmol above preoperative level
   3. Postoperative renal failure requiring Haemofiltration/dialysis
   4. Unknown

57. Other complication(s)
   [ ] Yes  [ ] No  [ ] Unknown

L – PATIENT OUTCOME

58. What was the outcome of the patient?
   [ ] Died in hospital after decision NOT to operate
   [ ] Died in hospital after decision to operate but before operation commenced
   [ ] Died during operation
   [ ] Died in recovery area
   [ ] Died on the ICU/HDU within 30 days of operation
   [ ] Died on ward within 30 days of operation
   [ ] Alive 30 days after operation, still in hospital
   [ ] Discharged within 30 days of operation
   [ ] Unknown

59. Date of death/discharge (If applicable)
   [ ] [ ] [ ]
   dd  mm  yyyy

60. Please write clearly any additional observations you wish to report about the management of this patient.

Thank you for taking the time to complete this questionnaire
<table>
<thead>
<tr>
<th>QUESTION</th>
<th>DEFINITION</th>
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<tbody>
<tr>
<td><strong>B. Admission details</strong></td>
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<td>5. Mode of admission</td>
<td><strong>Elective</strong>: Routine admission from the waiting list at a time to suit both patient and surgeon, resources permitting.  <strong>Emergency</strong>: Unscheduled admission. Patients who have not been scheduled for routine admission from the waiting list.  <strong>Elective Transfer</strong>: Elective admission from another hospital.  <strong>Emergency Transfer</strong>: Emergency admission from another hospital.</td>
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<td><strong>C. Co-morbidities</strong></td>
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<td>8. Cardiac History</td>
<td><strong>Heart failure</strong>: History of left ventricular failure with pulmonary oedema requiring either admission to hospital or treatment with diuretics.</td>
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<td>9. Respiratory History</td>
<td><strong>Dyspnoea on exertion</strong>: Slight limitation of physical activity – strenuous physical activity results in dyspnoea.  <strong>Dyspnoea at rest</strong>: Marked limitation of physical activity – ordinary physical activity results in dyspnoea.</td>
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<td><strong>D. Examination and investigation</strong></td>
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<td>12. Aneurysm</td>
<td><strong>Ruptured retroperitoneal</strong>: Evidence on imaging of retroperitoneal haematoma.  <strong>Ruptured intraperitoneal</strong>: Evidence on imaging of intraperitoneal soiling with blood.  <strong>Unruptured: symptomatic and/or tender</strong>: Tender to palpation, with or without abdominal or back pain, with no clinical or imaging evidence of rupture.  <strong>Unruptured: asymptomatic</strong>: Surgery required to prevent death from rupture at some future date. Indication for surgery is usually a diameter of more than 5.5cm².</td>
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<td><strong>H. Operation</strong></td>
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<td>39. Classification of operation</td>
<td><strong>Elective</strong>: Operation at a time to suit both patient and surgeon, resource permitting.  <strong>Scheduled</strong>: An early operation but not immediately life-saving (operation within 3 weeks).  <strong>Urgent (Unplanned)</strong>: Patients who have not been scheduled for routine admission from the waiting list but who require surgery on the current admission. Patients can be admitted to hospital and referred for a specialist vascular opinion the next day.  <strong>Emergency</strong>: Immediate life-saving operation, resuscitation simultaneous with surgical treatment. Operation usually within 1 hour.</td>
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<td><strong>I. The surgeon</strong></td>
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<td>46. Specialty of surgeon</td>
<td><strong>Vascular surgeon</strong>: A surgeon with expertise and a regular practice in vascular surgery (at least 70% of elective surgical time is spent doing vascular cases).  <strong>General surgeon with vascular interest</strong>: A substantial proportion of elective surgical time is spent doing vascular cases, typically less than 70%.  <strong>General surgeon (no vascular interest)</strong>: A surgeon who may have to deal with emergency vascular cases from time to time but who does no elective vascular surgery.</td>
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<td><strong>J. Operative details</strong></td>
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<td>48. Aortic findings</td>
<td><strong>Inflammatory aneurysm</strong>: Evidence of a typical hyperaemic periaortic inflammation or chronic, fibrotic inflammation producing an ‘icing-sugar’ aortic wall. Histology shows an exaggerated inflammatory response.  <strong>Ruptured aneurysm (intraperitoneal)</strong>: Evidence at operation or on imaging of intraperitoneal soiling with blood.  <strong>Ruptured aneurysm (retroperitoneal haematoma/tamponade)</strong>: Evidence at operation or on imaging of retroperitoneal haematoma.</td>
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<td><strong>K. Post-operative complications within 30 days of surgery</strong></td>
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<td>51. Infection</td>
<td><strong>Chest</strong>: Production of purulent sputum with positive bacteriological cultures, with, or without chest radiography changes of pyrexia, or consolidation seen on chest radiograph.  <strong>Graft</strong>: Clinical suspicion confirmed microbiologically and/or radiologically and/or at reoperation.  <strong>Intra-abdominal</strong>: The presence of intra-abdominal collection confirmed clinically or radiologically.  <strong>Pyrexia of unknown origin</strong>: Any temperature above 37°C for more than 24 hours occurring after the original pyrexia following surgery (if present) had settled or for which no obvious cause could be found.  <strong>Septicaemia</strong>: Positive blood culture.  <strong>Urinary tract</strong>: The presence of &gt;150 bacteria/ml with white cells in the urine, in previously clear urine.  <strong>Wound</strong>: Wound cellulitis or the discharge of purulent exudate.</td>
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<td>52. Stroke</td>
<td><strong>Disabling</strong>: Difficulty with self-care (requires assistance).  <strong>Non-disabling</strong>: No difficulty with self-care (independent).</td>
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<td>55. Ischaemic bowel</td>
<td><strong>Yes</strong>: Confirmed at laparotomy or by mucosal changes on endoscopy or at autopsy</td>
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