

ABDOMINAL AORTIC ANEURYSM STUDY

National Confidential Enquiry into Patient Outcome and Death (NCEPOD)

SURGICAL QUESTIONNAIRE

CONFIDENTIAL

Hospital Number of patient

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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.

Questionnaires have also been sent to the consultant anaesthetist and radiologist (where applicable) involved.

Please return completed questionnaires to NCEPOD, either directly or via the Local Reporter.

How to complete this questionnaire

This form will be electronically scanned. Please use a black or blue pen. Please complete all questions with either block capitals or a bold cross inside the boxes provided e.g.

Any diagnosed diabetes?

Yes No Unknown

If you make a mistake, please "black-out" the box and re-enter the correct information, e.g.

Any diagnosed diabetes?

Yes No Unknown

Unless indicated, please mark only one box per question. A list of definitions is provided on the back of the questionnaire. Free space is provided on page 11 for your comments.

Incomplete questionnaires may be followed up.

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

d d

m m

y y

4. Time of admission

h h

m m

(Please use 24 hour clock)

5. Mode of admission

(See definitions at end of questionnaire)

1

Elective

2

Emergency

3

Elective Transfer

4

Emergency Transfer

C - CO-MORBIDITIES AND RISK FACTORS

6. Build

1

Morbid obesity (BMI>35)

2

Normal

3

Cachexia

4

Unknown

7. Cardiac signs

1

None

2

Peripheral oedema

3

Pulmonary oedema

4

Raised JVP/high CVP

5

Other

6

Unknown

Please cross **ALL** that apply

8. Cardiac history

(See definitions at end of questionnaire)

Please cross **ALL** that apply

- 1 None
- 2 Angina – controlled/on exertion
- 3 Angina – uncontrolled/at rest
- 4 Heart failure - treated within the last month
- 5 Heart failure >1 month ago
- 6 Hypertension
- 7 MI/Cardiac arrest during this admission and prior to surgery
- 8 MI 0 – 2 months ago
- 9 MI >2 months ago
- 10 Orthopnoea
- 11 Other
- 12 Unknown

9. Respiratory history

(See definitions at end of questionnaire)

- 1 None
- 2 Dyspnoea on exertion
- 3 Dyspnoea at rest
- 4 Other
- 5 Unknown

10. Any diagnosed diabetes

- Yes No Unknown

11. Medication

Please cross **ALL** that apply

- 1 None
- 2 For angina
- 3 For heart failure
- 4 For hypertension
- 5 Steroids
- 6 Warfarin
- 7 Other
- 8 Unknown

D - EXAMINATION AND INVESTIGATION AT ADMISSION

12. Aneurysm
(See definitions at end of questionnaire)
- 1 Ruptured: Retroperitoneal
 - 2 Ruptured: Intraperitoneal
 - 3 Unruptured: Symptomatic and/or tender
 - 4 Unruptured: Asymptomatic
 - 5 Undiagnosed until laparotomy
 - 6 Unknown

13. ECG
- 1 Normal
 - 2 AF (rate >90)
 - 3 Other abnormality
 - 4 Unknown

14. Glasgow coma score
- 1 Fully conscious (15)
 - 2 Intermediate (9-14)
 - 3 Unconscious (3-8)
 - 4 Unknown

15. Imaging
- Please cross ALL the apply*
- 1 Angiography
 - 2 CT
 - 3 MRI
 - 4 Ultrasound
 - 5 None of the above
 - 6 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)

- | | | | |
|----------------------------|-----------------------------------|-----------------------------|---------------------------|
| 1 <input type="checkbox"/> | Consultant anaesthetist | 9 <input type="checkbox"/> | SpR anaesthetist year 1/2 |
| 2 <input type="checkbox"/> | Consultant surgeon | 10 <input type="checkbox"/> | SpR surgeon year 3+ |
| 3 <input type="checkbox"/> | Associate Specialist anaesthetist | 11 <input type="checkbox"/> | SpR surgeon year 1/2 |
| 4 <input type="checkbox"/> | Staff Grade anaesthetist | 12 <input type="checkbox"/> | SHO anaesthetist |
| 5 <input type="checkbox"/> | Associate Specialist surgeon | 13 <input type="checkbox"/> | SHO surgeon |
| 6 <input type="checkbox"/> | Staff Grade surgeon | 14 <input type="checkbox"/> | HO surgeon |
| 7 <input type="checkbox"/> | Nurse practitioner | 15 <input type="checkbox"/> | Other |
| 8 <input type="checkbox"/> | SpR anaesthetist year 3+ | 16 <input type="checkbox"/> | Unknown |

Please go to section G, pg 7

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

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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Elective	<input type="checkbox"/>	Unknown
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency	<input type="checkbox"/>	Unknown

i Where was this information obtained?

1 <input type="checkbox"/>	Log book/information system
2 <input type="checkbox"/>	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

26. Lowest systolic blood pressure 1 mmHg Unknown
27. Highest pulse rate 2 min⁻¹ Unknown
28. Lowest oxygen saturation 3 % Unknown
29. Anuric between admission and decision to operate? Yes No Unknown

G - PREOPERATIVE LABORATORY INVESTIGATIONS

(Elective and Emergency patients)

measurements taken as close as possible to operation

30. Haemoglobin 1 . g dl⁻¹ Unknown
31. White blood cell count 2 . 10⁹l⁻¹ Unknown
32. Urea 3 . mmol l⁻¹ Unknown
33. Creatinine 4 μmol l⁻¹ Unknown
34. Sodium 5 mmol l⁻¹ Unknown
35. Potassium 6 . mmol l⁻¹ Unknown
36. Albumin 7 . g dl⁻¹ Unknown
37. INR (within 24 hours of surgery) 8 . Unknown

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)

38. Date of operation

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<i>d</i>	<i>d</i>	<i>m</i>	<i>m</i>	<i>y</i>	<i>y</i>

39. Classification of surgery

(See definitions at end of questionnaire)

- 1 Elective
- 2 Scheduled
- 3 Urgent
- 4 Emergency
- 5 Unknown

40. a Surgical start time – incision

<input type="text"/>	<input type="text"/>	:	<input type="text"/>	<input type="text"/>	<i>Please use 24 hour clock</i>
<i>h</i>	<i>h</i>		<i>m</i>	<i>m</i>	

b If the start time occurred between 00:00 (midnight) and 08:00, were there any problems with availability of surgical assistance?

<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Unknown
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41. Finish time – closure

<input type="text"/>	<input type="text"/>	:	<input type="text"/>	<input type="text"/>	<i>Please use 24 hour clock</i>
<i>h</i>	<i>h</i>		<i>m</i>	<i>m</i>	

Please cross ALL that apply

42. Were any of the following procedures completed during the same theatre visit?

- 1 Peripheral artery bypass
- 2 Thrombectomy/embolectomy
- 3 Other vascular procedures
- 4 Other non-vascular procedures
- 5 None of the above
- 6 Unknown

43. Position of aortic clamp

- 1 Sub-diaphragmatic
- 2 Supra-renal
- 3 Infra-renal
- 4 Unknown

44. AAA repair

- 1 Tube
- 2 Bifurcated – intraperitoneal
- 3 Bifurcated – groin
- 4 Other
- 5 Unknown

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 | <input type="checkbox"/> | Consultant | 5 | <input type="checkbox"/> | SpR year 1/2 |
| 2 | <input type="checkbox"/> | Associate Specialist | 6 | <input type="checkbox"/> | SHO |
| 3 | <input type="checkbox"/> | Staff Grade | 7 | <input type="checkbox"/> | Other |
| 4 | <input type="checkbox"/> | SpR year 3+ | 8 | <input type="checkbox"/> | Unknown |

46. Specialty of most senior operating surgeon
(See definitions at end of questionnaire)
- | | | |
|---|--------------------------|---|
| 1 | <input type="checkbox"/> | Vascular surgeon |
| 2 | <input type="checkbox"/> | General surgeon with vascular interest |
| 3 | <input type="checkbox"/> | General surgeon with NO vascular interest |
| 4 | <input type="checkbox"/> | Specialist surgeon (e.g. colorectal) |
| 5 | <input type="checkbox"/> | 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?
- | | | | | | |
|--------------------------|--------------------------|--------------------------|-----------|--------------------------|---------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Elective | <input type="checkbox"/> | Unknown |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Emergency | <input type="checkbox"/> | Unknown |

- i Where was this information obtained?
- | | | |
|---|--------------------------|-----------------------------|
| 1 | <input type="checkbox"/> | Log book/information system |
| 2 | <input type="checkbox"/> | Memory |

- b Is the senior surgeon a member of the Vascular Surgical Society of Great Britain & Ireland?
- | | | | | | |
|--------------------------|-----|--------------------------|----|--------------------------|---------|
| <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 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 | <input type="checkbox"/> | Unruptured: Standard atherosclerotic aneurysm |
| 2 | <input type="checkbox"/> | Unruptured: Infected aneurysm |
| 3 | <input type="checkbox"/> | Unruptured: Inflammatory aneurysm |
| 4 | <input type="checkbox"/> | Ruptured: Intraperitoneal |
| 5 | <input type="checkbox"/> | Ruptured: Retroperitoneal haematoma/tamponade |
| 6 | <input type="checkbox"/> | Ruptured: Inflammatory |

K - POSTOPERATIVE COMPLICATIONS WITHIN 30 DAYS OF SURGERY

- 49.** Graft/anastomotic complications
e.g. haemorrhage, occlusion, infection
- 1 None *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 *Please cross ALL that apply*
- 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?

- 1 Died in hospital after decision NOT to operate
- 2 Died in hospital after decision to operate but before operation commenced
- 3 Died during operation
- 4 Died in recovery area
- 5 Died on the ICU/HDU within 30 days of operation
- 6 Died on ward within 30 days of operation
- 7 Alive 30 days after operation, still in hospital
- 8 Discharged within 30 days of operation
- 9 Unknown

59. Date of death/discharge (If applicable)

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<i>d</i>	<i>d</i>	<i>m</i>	<i>m</i>	<i>y</i>	<i>y</i>

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

Definitions

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

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