SUSPECTED ANAPHYLACTIC REACTIONS ASSOCIATED WITH ANAESTHESIA

Revised Edition 2003

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Acknowledgements

1. EXECUTIVE SUMMARY

1.1 This report has been revised from the first and second editions published in 1990 and 1995.

1.2. Anaphylactic reactions are rare during anaesthesia but may be increasing in frequency.

1.3 There are no clinical trial data and therefore no evidence base is available or likely to become available. Recommendations follow analysis of case reports and summaries of experience.

1.4 Guidelines about the treatment of a patient with suspected anaphylaxis during anaesthesia must take into account the inevitability of some diagnostic errors and an emphasis on the safety of any recommended therapy.

1.5 Even severe reactions show a prompt and successful response to appropriate treatment in most patients.

1.6 Treatment normally should include epinephrine (adrenaline) at an early stage. A model operating procedure for management of patients with suspected anaphylaxis is included.

1.7 Any patient who has a suspected anaphylactic reaction associated with anaesthesia should be investigated fully. The anaesthetist who administered the drugs is responsible for ensuring that this is done.

1.8 Immediate blood tests to confirm diagnosis and recommendations for skin testing to identify the causative agent are described. A list of allergists with experience in skin prick testing for anaesthetic drugs is included.

1.9 All suspected adverse reactions should be reported to the Medicines and Healthcare Products Regulatory Agency.

1.10 There is no valid predictor of drug anaphylaxis at present. Claims that any form of screening will predict anaphylaxis are without foundation.

2. INTRODUCTION

2.1 In 1990, the Association of Anaesthetists of Great Britain and Ireland (AAGBI) published its first report on suspected anaphylactic reactions associated with anaesthesia. In 1995, a second edition was published jointly with the British Society for Allergy and Clinical Immunology (BSACI) in an attempt to help members of both societies with advice about the investigation and subsequent management of patients suspected of having suffered an anaphylactic reaction associated with anaesthesia.

The third working party was established to give particular attention to the results of recent reports such as that of the Resuscitation Council dated 1999, and on the value of investigations and their availability to anaesthetists in Great Britain and Ireland.

The incidence of anaphylactic reactions and the associated morbidity/mortality in the UK is still unclear. It is the view of the working party that the incidence of suspected anaphylactic reactions during anaesthesia is low but the number of cases may be increasing.

2.4 There remains uncertainty about which laboratory investigations should be undertaken following a reaction as well as their interpretation and significance. The role of the anaesthetist in the investigations has been a cause for concern.

3. OBJECTIVES

3.1 To review the incidence of anaphylactic reactions associated with anaesthesia.

3.2 To consider the recognition and treatment of anaphylactic reactions.

3.3 To make recommendations about the investigation of anaphylactic reactions.

3.4 To consider the role of screening for the risk of anaphylactic reactions before anaesthesia.

3.5 To make recommendations about the reporting and collection of data on anaphylactic reactions.

3.6 To list major allergy centres able to help with investigations

4. INCIDENCE

4.1 Estimation of the frequency of these reactions remains difficult.

4.2 Reports to the Medicines Control Agency (MCA) from British anaesthetists from 1 January 1995 to 22 June 2001 are shown in Table 4.1 [1].

Table 4.1 Adverse reactions reported to the MCA between 1 January 1995 and 22 Jun 2001. Fatal reactions are shown in brackets.

Reaction *	All drugs	Anaesthetic drugs
Anaphylactic Shock	118(9)	31(4)
Anaphylactic Reaction	1108(32)	173(13)
Anaphylactoid Reaction	848(35)	157(19)

* as defined by the reporter of the reaction

Thus the average number of reported suspected anaphylactic reactions related to anaesthesia is 55 per year compared with an average of 319 for all drugs. Ten per cent of anaesthetic reports were of fatalities compared with 3.7% for all drugs reported.

4.2 In France, since 1984 there has been an epidemiological study of suspected anaphylactic reactions occurring during anaesthesia. The report covering July 1994 to December 1996 [2] included 1,648 patients. The overall incidence of reactions was 1 in 13,000 anaesthetics while the incidence of anaphylaxis to neuromuscular blocking agents was 1 in 6,500 anaesthetics. Of the 1,648 patients, there were characteristic symptoms and positive allergy tests in 692 patients. In 611 patients, there were characteristic symptoms and negative allergy tests. In 345, there were thought to be other causes because of negative allergy tests and different clinical features.

Of the 692 patients, 734 substances were implicated. They included neuromuscular blocking drugs (62%), latex (17%), antibiotics (8%), hypnotics (5%), colloids (3%), opioids (3%) and others (3%). The neuromuscular blocking drugs implicated were (in decreasing order of frequency) vecuronium, atracurium, succinyl choline (suxamethonium), pancuronium, rocuronium, mivacurium and gallamine.

In 70% of patients found to be allergic to a neuromuscular blocking drug, cross reactivity was found to others; 17% of those allergic to a neuromuscular blocking drug had not had anaesthesia before. The female to male ratio was 2.5

4.3 In Australia [3], the incidence was reported to be between 1 in 10,000 to 1 in 20,000 anaesthetics in 1993.

4.4 By extrapolating all of these data to the UK, we estimate that there are 500 reactions in the UK each year.

4.5 It is important to emphasise that a previous history of specific drug exposure is not necessary, particularly for neuromuscular blocking drugs. A history of previous exposure is found in fewer than 50% of patients who are allergic to neuromuscular blocking drugs. In contrast, multiple uneventful prior exposures are not unusual in patients who have a reaction to thiopental.

4.6 Latex hypersensitivity is increasingly being recognised as a cause of anaphylaxis, especially in abdominal and gynaecological surgery. Typically the reaction begins 30-60 minutes after the start of the procedure rather than at induction.

4.7 Anaphylactic reactions are more common when drugs are given intravenously.

4.8 Anaphylactic reactions to local anaesthetic drugs are very rare. The committee knows of no published reports of a reaction to inhaled anaesthetic agents.

5. RECOGNITION

It is essential that every doctor who gives drugs, particularly intravenously, is able to recognise and treat such reactions. A definition of terms is given in Appendix 1.

Reactions may occur at any time during anaesthesia but they are most common immediately or soon after induction (>90%).

The first clinical feature noted in a survey of 589 patients is shown below [4]

Table 5.1 First clinical feature of anaphylaxis in 589 patients [4].

Feature	**Number of patients**
No pulse	153
Difficult to inflate lungs	140
Flush	107
Desaturation	63
Cough	40
Rash	25
ECG abnormality	13
Urticaria	11
Subjective	9
Swelling	7
No bleeding	2
Other	19
Total	**589**

Thus the commonest presentation is cardiovascular with bronchospasm and skin changes only slightly less common.

5.5 The actual clinical features in 555 patients are shown below. [4]. Cardiovascular manifestations are the most common. Cardiovascular collapse is the only feature in 10% of patients and may be misdiagnosed.

5.6 Any system may be the only system involved and the full range of clinical features does not occur in every patient.

5.7 Asthmatic patients who have a reaction are likely to have bronchospasm and this may be very difficult to treat.

5.8 Factors which increase severity included asthma, beta-adrenoreceptor blockade and neuraxial anaesthesia. All of these states are associated with reduced endogenous catecholamine response.

Table 5.2 Actual clinical features of anaphylaxis in 555 patients [4].

Symptom	Number of cases	Sole feature	Worst feature
Cardiovascular collapse	490	61	434
Bronchospasm	207	32	100
Transient	84		
Asthmatics	91		
Cutaneous			
Rash	73		
Erythema	264		
Urticaria	45		
More than one	32		
Angioedema	135	7	18
Generalized oedema	37		
Pulmonary oedema	13	2	3
Gastrointestinal	38		

5.9 The lack of consistent clinical manifestations and the wide range of possible presentations may cause diagnostic difficulty. Thus guidelines about the treatment of a patient with suspected anaphylaxis during anaesthesia must take into account the inevitability of some diagnostic errors and an emphasis on the safety of any recommended therapy.

6. MANAGEMENT

6.1 The response to treatment may depend on the severity of the reaction. Even severe anaphylaxis is associated with a prompt and successful response to appropriate treatment in most patients.

6.2 Every anaesthetist should know an ‘anaphylaxis drill’. This should be agreed by Departments of Anaesthesia as a standard operating procedure and be available immediately in all rooms where anaesthetics are given. An example of an ‘anaphylaxis model operating procedure’ is given in Appendix 2.

6.3 Anaesthetists should rehearse a simulated ‘anaphylaxis drill’ at regular intervals. These rehearsals should include members of staff who would be called upon to assist.

6.4 Treatment of severe cases should include epinephrine (adrenaline) at an early stage. This works best when given early after the onset of the reaction.

6.5 In some patients, eg those with extradural analgesia or taking beta-adrenoreceptor antagonists, the response may be reduced. The dose of epinephrine may need to be repeated or an alternate catecholamine given.

6.6. Treatment may also include the use of antihistamines, corticosteroids and intravenous fluids.

7. IMMEDIATE INVESTIGATION

7.1 Mast cell tryptase samples

Take three blood tests, each 5 to 10 ml

(i) immediately after the reaction has been treated, and;

(ii) about 1 hour after the reaction;

(iii) about 6 hours or up to 24 h after the reaction

It is essential to state the time on samples (and time from onset of reaction) and record this in the notes.

Separate serum (or plasma) and store at 4°C if the sample can be analysed within 48 hours. Otherwise store the sample at – 20°C until it can be sent for measurement of serum tryptase.

7.2 Timing

The rise in tryptase is transient and so timing is important. Tryptase concentration is thought to reach a peak at 1 hour after an anaphylactic reaction, but there is evidence to suggest that the rise is earlier in reactions with hypotension; if the1 hour sample only is taken, the rise may be missed.

7.3 Interpretation

Elevated serum tryptase indicates that the reaction was associated with mast cell degranulation. The tryptase concentration rises after both anaphylactic and anaphylactoid reactions and helps to distinguish these from other causes of an adverse event, ie defines the mechanism. This does not identify the causative agent. A negative test does not completely exclude anaphylaxis and the tryptase is unlikely to be elevated in mild systemic reactions.

8. LATER INVESTIGATIONS TO IDENTIFY CAUSATIVE AGENT.

8.1 The standard procedure should include advice about investigation of the reaction and advice to be given to the patient. Investigation must not interfere with the immediate treatment of the patient.

8.2 Any patient who has a suspected anaphylactic reaction associated with anaesthesia should be investigated fully.

8.3 The anaesthetist who administers the drugs associated with the suspected anaphylactic reaction, in consultation with a consultant if the anaesthetist is a trainee, must be responsible for ensuring that these tests are performed and interpreted adequately. A checklist of actions is given in Appendix 3.

8.4 Refer the patient to an allergist. It is important to use an allergist with considerable experience of this problem and investigation should preferably be in defined Regional Allergy Centres. Anaphylaxis during anaesthesia is one of the disorders defined as requiring a Regional Allergist's expertise (Regional Specialised Services Definition No.17 Allergy, London Regional Specialist Commissioning Group). Anaesthetic departments should have identified a referral Centre and lead Allergist.

8.5 A detailed analysis of events surrounding the suspected anaphylactic reaction must be undertaken. The time of onset of the reaction in relation to induction and other events is important. All drugs given before and during the anaesthetic as well as their timing in relation to the reaction must be noted.

8.6 With the referral send:

(i) photocopies of anaesthetic chart (both sides if relevant);
(ii) photocopies of drug charts;
(iii) description of the reaction and time of onset in relation to induction;
(iv) a note of tests sent and their time

8.7 The allergists will perform skin prick tests to general anaesthetic drugs, which show the presence of specific IgE antibodies to these drugs.

8.8 Intradermal skin tests for anaesthetic drugs (using more dilute solutions than for skin prick tests) are not first line tests, but may occasionally be required. The skin tests should be carried out 4 to 6 weeks after the reaction. Appropriate dilutions, particularly in the case of neuromuscular blocking agents, should be used to avoid false positive responses [6].

8.9 For a limited number of anaesthetic drugs, specific IgE antibodies in the serum can be measured. Currently the only commercial assay available is for succinyl choline (suxamethonium).

The allergists may perform tryptase analysis to provide a baseline result. This is only necessary if the acute tryptase showed only a borderline elevation and was not clearly in the abnormal range.

8.11 Other allergic causes may have to be considered, eg

(i) non-anaesthetic drugs such as antibiotics given with induction, analgesics given intra-operatively, drugs given pre-operatively. Appropriate investigation will depend on the drug in question.

(ii) latex rubber allergy: this can be assessed by history supported by skin testing or measuring specific IgE, eg by RAST or CAP.

9. REPORTING

9.1 Accurate reporting requires careful record keeping at the time of the event.

9.2 All suspected anaphylactic reactions associated with anaesthesia should be reported to the Committee on Safety of Medicines.

9.3 All reactions should be reported on a "Yellow card" even if the reaction is reported elsewhere (eg at a morbidity meeting, as a case report, to an allergist, or to the drug company). The doctor who administers the drug is responsible for ensuring that the reaction is reported appropriately.

Departments of Anaesthesia are responsible for ensuring that supplies of the current "Yellow card" are available in all rooms where anaesthetics are given.

Yellow cards can be found in the British National Formulary and the new MIMS companion. Supplies of cards can also be obtained via the National Yellow Card Information Service (Freephone 0800 731 6789) or by downloading a copy from the website at http://www.mhra.gov.uk where an electronic version is also available

The Medicines and Healthcare Products Regulatories Agency (MHRA) was formed from a merger of the Medicines Control Agency (MCA) and Medicines Device Agency (MDA) on the1st April 2003

9.5 The anaesthetist is responsible for the advice given to patients about future anaesthesia. This responsibility cannot be delegated. This must include a full explanation to the patient, parent or guardian as soon as possible. There must be a full record in the case notes with a copy to the general practitioner. The patient should be given a written record of the reaction and be encouraged to carry an anaesthetic hazard card or a Medic-Alert bracelet.

10. SCREENING

10.1 There is no support at present for routine screening of patients for specific drug antibodies before anaesthesia.

10.2 There is no valid predictor of drug anaphylaxis. Claims that any form of screening will predict anaphylaxis are without foundation.

10.3 A history of previous exposure is not necessary for an anaphylactic reaction. Routine testing is not indicated before a first or subsequent exposure to drugs used previously without incident.

10.4 The use of test doses of intravenous drugs is not an appropriate method of testing for anaphylaxis. Anaphylaxis has resulted from very small doses.

APPENDIX 1: DEFINITION OF TERMS

An adverse drug reaction is the occurrence of any drug effect that is not of therapeutic, diagnostic or prophylactic benefit to the patient. Adverse reactions may be classified as follows:

Type A	Type B
Dose related	Not dose related – may be precipitated by a minute dose. Commonly more severe on re-exposure
Extension of pharmacological response	Symptoms and signs unlike normal pharmacological response.Typical of drug allergy
Common	Uncommon

An anaphylactic reaction (anaphylaxis) is an exaggerated response to a substance to which an individual has become sensitised, in which histamine, serotonin and other vasoactive substances are released from basophils and mast cells in response to an IgE-mediated reaction. This causes systemic symptoms which can include pruritus, erythema, flushing, urticaria, angio-oedema, nausea, diarrhoea, vomiting, laryngeal oedema, bronchospasm, hypotension, cardiovascular collapse and death. Anaphylactic reactions are Type B adverse reactions.

Anaphylactoid reactions are clinically indistinguishable from anaphylaxis, but are not mediated by sensitising IgE antibody. Examples include NSAIDS and opioids.

Whether a reaction is called **anaphylactic** or **anaphylactoid** may depend on whether it is investigated, the means by which it is investigated and how the results are interpreted.

Mast cell tryptase is the principal protein content of mast cell granules and is released, together with histamine and other amines, in anaphylactic and anaphylactoid reactions. Its concentration in the plasma or the serum is raised between after reactions which involve mast cell degranulation.

Approximately 99% of the body's total enzyme is located within the mast cell. It is not present in red or white cells and therefore plasma concentrations are not affected by haemolysis. The basal tryptase concentration is 0.8 to 1.5 ng/ml with the normal value usually <1 ng/ml. The half life is approximately 2.5 hours with maximum concentrations occurring rapidly and certainly within 1 hour.

Post-mortem analysis of plasma or serum tryptase may yield meaningful results. Elevated concentrations can be detected for 12 to 14 h even in the event of death. Plasma or serum tryptase concentrations of >20 ng/ml may be seen after anaphylactic reactions. In vitro, tryptase is a stable protein. Plasma or serum may be stored for long periods before laboratory analysis.

Radio-allergosorbent test (RAST) is a technique for measurement of antigen specific IgE antibodies in serum. The CAP is an alternative to RAST. It is a fluoro-immunoassay and is more sensitive than RAST.

APPENDIX 2:

MANAGEMENT OF A PATIENT WITH SUSPECTED ANAPHYLAXIS DURING ANAESTHESIA: MODEL OPERATING PROCEDURE/GUIDELINE

1. Stop administration of all agents likely to have caused the anaphylaxis.
2. Call for help
3 Maintain airway, give 100% oxygen and lie patient flat with legs elevated.
4. Give epinephrine (adrenaline). This may be given intramuscularly in a dose of 0.5 mg to 1 mg (0.5 to 1 ml of 1:1,000) and may be repeated every 10 minutes according to the arterial pressure and pulse until improvement occurs.

   Alternatively, 50 to 100 micrograms intravenously (0.5 to 1 ml of 1:10,000) over 1 minute has been recommended for hypotension with titration of further doses as required.

   Never give undiluted epinephrine 1:1000 intravenously

   In a patient with cardiovascular collapse, 0.5 to 1 mg (5 to 10 ml of 1:10,000) may be required intravenously in divided doses by titration. This should be given at a rate of 0.1 mg/minute stopping when a response has been obtained.

   Paediatric doses of epinephrine depend on the age of the child. Intramuscular epinephrine 1:1000 should be administered as follows

>12 years	500 micrograms IM (0.5ml)
6-12 years	250 micrograms IM (0.25ml)
>6 months-6 years	120 micrograms IM (0.12ml)
<6 months	50 micrograms IM (0.05ml)

   Start rapid intravenous infusion with colloids or crystalloids. Adult patients may require 2 to 4 litres of crystalloid.

Secondary Therapy

1. Give antihistamines (chlorpheniramine 10-20 mg by slow intravenous infusion)
2. Give corticosteroids (100 to 500 mg hydrocortisone slowly iv).
3. Bronchodilators may be required for persistent bronchospasm.

Statement

This guideline is not a standard of medical care. The ultimate judgement with regard to a particular clinical procedure or treatment plan must be made by the clinician in light of the clinical data presented and the diagnostic and treatment options available.The guideline will be reviewed in the light of new knowledge and will be reissued in 2008.

APPENDIX 3:

Investigation of Suspected Anaphylaxis Associated with Anaesthesia

Checklist of actions (tick boxes as necessary)

Patient name . . . . . .

Address . . . . . .

. . . . . .

No . . . . . .DOB . . . . . .

Incident date . . . . . .Hospital . . . . . .

Anaesthetist . . . . . .Patient's Consultant . . . . . .

Drugs Administered . . . . . .

. . . . . .

Suspected drug . . . . . .

. . . . . .

Blood samples sent for tryptase ☐ Immediately ☐ 1hour ☐ 6 hour

Blood samples sent for RAST ☐ Post op care team informed ☐

Patient given explanation ☐ Record in Hospital Notes ☐

GP informed ☐ Medic-Alert bracelet ☐

CSM Yellow card ☐ Discussed at Audit Meeting ☐

Referral to Allergist ☐

(Referral to include clinical description, photocopies of patients' drug chart and anaesthetic chart)

Blood results tryptase ☐ Immediately ☐ 1hour ☐ 6 hour

Blood results for RAST . . . . . .

Skin test results . . . . . .

Allergist's interpetation . . . . . .

. . . . . .

APPENDIX 4:
FREQUENTLY ASKED QUESTIONS

Q. Is it worth giving a 'test dose' of antibiotic before the whole dose?

A. *No. It is probably more useful to allow some time between giving induction agents and IV antibiotics as reactions usually occur within a few minutes. Reactions to drugs given at induction will then occur before the antibiotics are given, ruling this out as a cause.*

Q. If someone develops a rash with penicillin should I avoid cephalosporins?

A. *A proportion of penicillin allergic subjects react to cephalosporins but this cross reactivity has reduced greatly after the introduction of second and third generation cephalosporins. Since 1980, reaction rates in penicillin history positive, skin test positive patients who were given a cephalosporin decreased to 2% (previously these reactions resulted from cephalothin or cephaloridine). If patients with a history of penicillin allergy are not skin tested but are given a second or third generation cephalosporin, the chance of a reaction is less than 1%. Note: the majority of patients with a history of a rash attributed to penicillin allergy, are not allergic.*

Q. Should I use crystalloid or colloid to treat anaphylaxis?

A. *If you have already used colloid then you must consider that this may be the cause of the reaction, and therefore change immediately to crystalloid. However, if you have not used colloid before the reaction it may be used in resuscitation as we feel that the chances of reacting to colloid as well as an anaesthetic agent is exceedingly low, and the potential benefits of colloid in resuscitation are greater than this small risk.*

Q. When should I take my blood samples?

A. *The first sample should be taken as soon as possible, but MUST NOT interfere with resuscitation. Further samples should be taken at 1 hour and 6 hours.*

Q. What bottles should I use for the blood sample and what should I ask the lab to do with it?

A. *Blood should be sent in a plain tube as soon as possible following resuscitation, at 1 hour and 6 hours (three samples correctly labelled with sample time). The blood should be spun and the serum separated and stored at $4^{o}C$ (if the sample can be analysed within 48 hours) or $-20^{o}C$ if it will take longer for the tryptase measurement to be done by the Immunology Department.*

Q. Should I collect urine?

A. *No. Urinary methyl histamine may well be raised, but it will not add to the information obtained from serum tryptase concentrations which will also be raised and is more specific for mast cell degranulation.*

Q. What should I do if my patient doesn't respond to epinephrine?

A. *Initially you should try more epinephrine. The majority of patients will respond to epinephrine but a few may not, and then other vasopressors such as metaraminol and nor'epinephrine (noradrenaline) may be tried.*

Q. What should I do with a patient who gives a convincing history of anaphylaxis during anaesthesia but has not been investigated or whose records are not available?

A. *This will depend on the urgency of the surgery. If there is time, previous records should be sought and skin prick testing initiated. In an emergency this may not be possible. A detailed history may be helpful, but if surgery must proceed then the following techniques should be considered: local or regional anaesthesia, avoiding all neuromuscular blocking drugs, inhalational induction and a latex-free environment.*

It should be possible to detect latex allergy from a detailed history; ask about response to rubber exposure, eg household gloves, condoms, dentist's or doctor's gloves.

Q. Should I do skin prick tests?

A. *No. Skin prick tests are very difficult to interpret, even in experienced hands, and are not validated for some groups of drugs. The patient should be referred to an experienced allergist. "In the middle of the night", a pragmatic consideration of previous anaesthetics and a technique avoiding high risk drugs is more appropriate than embarking on tests which you may misinterpret.*

Q. How should I follow these patients up?

A. *It is your (or your consultant's) responsibility to ensure that patients are appropriately followed up. The checklist (Appendix 4) lists the necessary tests and documentation. This will usually involve referral to an allergist.*

APPENDIX 5:

In Confidence

COMMITTEE ON SAFETY OF MEDICINES

MCA
MEDICINES CONTROL AGENCY

SUSPECTED ADVERSE DRUG REACTIONS

If you are suspicious that an adverse reaction may be related to a drug or combination of drugs please complete this Yellow Card. For reporting advice please see over. Do not be put off reporting because some details are not known.

PATIENT DETAILS Patient Initials: _____ Sex: M / F Weight if known (kg): _____

Age (at time of reaction): _____ Identification number (Your Practice / Hospital ReC)*: _____

SUSPECTED DRUG(S)

Give brand name of drug and batch number if known | Route | Dosage | Date started | Date stopped | Prescribed for

_____ | _____ | _____ | _____ | _____ | _____

_____ | _____ | _____ | _____ | _____ | _____

SUSPECTED REACTION(S)

Please describe the reaction(s) and any treatment given:

Outcome

Recovered ☐
Recovering ☐
Continuing ☐
Other ☐

Date reaction(s) started: _____ Date reaction(s) stopped: _____

Do you consider the reaction to be serious? Yes / No

If *yes*, please indicate why the reaction is considered to be serious (please tick all that apply):

Patient died due to reaction ☐ Involved or prolonged inpatient hospitalisation ☐

Life threatening ☐ Involved persistent or significant disability or incapacity ☐

Congenital abnormality ☐ Medically significant; please give details: _____

OTHER DRUGS (including self-medication & herbal remedies)

Did the patient take any other drugs in the last 3 months prior to the reaction? Yes / No

If *yes*, please give the following information if known:

Drug (Brand, if known) | Route | Dosage | Date started | Date stopped | Prescribed for

_____ | _____ | _____ | _____ | _____ | _____

_____ | _____ | _____ | _____ | _____ | _____

_____ | _____ | _____ | _____ | _____ | _____

_____ | _____ | _____ | _____ | _____ | _____

Additional relevant information e.g. medical history, test results, known allergies, rechallenge (if performed), suspected drug interactions. For congenital abnormalities please state all other drugs taken during pregnancy and the last menstrual period.

REPORTER DETAILS

Name and Professional Address: _____

_____

_____

Post code: _____ Tel No: _____

Specialty: _____

Signature: Date:

CLINICIAN (if not the reporter)

Name and Professional Address: _____

_____

_____ Post code: _____

Tel No: _____ Specialty: _____

If you would like information about other adverse reactions associated with the suspected drug, please tick this box ☐

* This is to enable you to identify the patient in any future correspondence concerning this report

Please attach additional pages if necessary

APPENDIX 6:

MAJOR ALLERGY CENTRES WILLING TO HELP WITH INVESTIGATIONS

Specialist Centres with expertise in diagnosis of suspected anaphylactic reactions during general anaesthesia

City	Hospital	Consultant (s)
Cambridge	**Addenbrooke's Hospital** Clinic 2A Hills Road, Cambridge CB2 2QQ Tel: (01223) 217777	**Dr P.W. Ewan**
	Addenbrooke's Hospital Clinic 2A Hills Road, Cambridge CB2 2QQ Tel: (01223) 586977	**Dr S.M.S. Nasser**
Leicester	**Glenfield Hospital** Department of Respiratory Medicine Leicester LE3 9QP Tel: (0116) 2871471	**Dr M.A. Stern**
Liverpool	**Broad Green Hospital** Consultant Allergist Allergy Department Alexandra Wing Thomas Drive Liverpool L14 3LB Tel: (0151) 7063475	**Dr T. Dixon**
London	**Guy's Hospital** Allergy Clinic, 2nd Floor Thomas Guy House St Thomas Street London SE1 9RT Tel: (0207) 9555000 ext 5944	**Dr P. Fitzharris**
	Guy's Hospital Allergy Clinic, 2nd Floor Thomas Guy House St Thomas Street London SE1 9RT Tel: (0207) 9555000 ext 4608	**Prof T. H. Lee**
	Guy's Hospital Allergy Clinic, 2nd Floor Thomas Guy House St Thomas Street London SE1 9RT Tel: (0207) 9555000 ext 4608	**Dr C. Corrigan**

	Royal Brompton Hospital Upper Respiratory Medicine National Heart & Lung Institute Dove Health Street SW3 6LY Tel: (0207) 3518992	**Prof S.R. Durham**
	St Mary's Hospital Praed Street London W2 1NY Tel: (0207) 8861149	**Dr D. Robinson** **Dr A. Croom**
Manchester	**St Mary Hospital** Consultant Clinical Immunologist Regional Immunology Service Hathersage Road Manchester M13 0JH Tel: (0161) 2766452 richard.pumphrey@cnnc.nhs.uk	**Dr R.S.H. Pumphrey**
	North Manchester General Clinical Care Offices Delaunays Road Crumpsall Manchester M8 5RB Tel: (0161) 7202342	**Dr A.M. Bentley**
Nottingham	**Queens Medical Centre** Clinical Immunology Department F Floor, West Block University Hospital NHS Trust Nottingham NG7 2UH Tel: (0115) 9709130	**Dr R. Powell**
Southampton	**Southampton General** Mail Point 810 Southampton SO16 6YD Tel: (02380) 794069	**Prof A.J. Frew**

Note

This includes ability to investigate reactions fully, including diagnosing allergy to all possible causes, e.g. general anaesthetic drugs, antibiotics, analgesics, nonsteroidals, latex and colloids. Facilities for challenge with analgesics, antibioticsand local anaesthetics must be available.

These cases are best referred to Regional Allergy Centres, who deal with large numbers of patients.

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