

4th National Audit Project of the Royal College of Anaesthetists: Major Complications of Airway Management in the UK

Please select one form from the list below

- ⦿ Airway management problem during anaesthesia
- ⦿ Airway management problem in ICU / HDU
- ⦿ Airway management problem occurring in the Emergency Department

Please note

Airway problems in the **Radiology Department** may occur in patients undergoing **anaesthesia** in that department or in patients transferred to the Radiology Department from **ICU** or the **Emergency Department** for investigation. For these patients and **for problems occurring in transit** complete the form relating to the site of initial airway management. For example if a patient develops airway obstruction in the CT scanner following intubation on the ICU the form NAP4ICU should be completed.

For problems occurring on **Labour Ward** please complete the form for airway management problem during anaesthesia

Enter

If you are not sure which form to select follow the links below for advice:-

RCoA Audit Pack to be found at :-

<http://www.rcoa.ac.uk/index.asp?PageID=1130>

RCoA Powerpoint Presentation to be found at :-

<http://www.rcoa.ac.uk/index.asp?PageID=1089>

FAQ's to be found at :-

<http://www.rcoa.ac.uk/index.asp?PageID=1147>

Inclusion Criteria

1. Please indicate the inclusion criteria by selecting one or more from the list below:

- Death
- Brain damage
- Emergency surgical airway or needle / cannula cricothyroidotomy
- Unanticipated ICU admission

2. Please indicate the **primary airway** problem: - *radio buttons to select any one*

- Aspiration of gastro-oesophageal contents
- Failed mask ventilation
- LMA or supraglottic airway related problem
- Difficult or delayed intubation
- Failed intubation
- Tracheal tube misplacement
- Obstruction of tracheal tube or anaesthetic circuit
- CICV - the can't intubate can't ventilate scenario
- Iatrogenic airway trauma
- Extubation related problems
- Tracheostomy related problems
- Other

Other [please specify *free text limit to 50 letters*]

3. What was the root cause of the poor outcome?

- Hypoxaemia due to airway obstruction Yes No
- Hypoxaemia due to tracheal tube misplacement or displacement Yes No
- Hypoxaemia due to equipment failure Yes No
- Aspiration of gastroesophageal contents Yes No
- Cardiac or neurological complications caused by hypo/hypertension during airway management Yes No
- Pharyngeal / oesophageal or other life-threatening soft-tissue trauma Yes No
- Other Yes No

Other [please specify *free text limit to 50 letters*]

4. About the person(s) completing this form:-

You are:-

- The clinician responsible for the patient's care (or one of team responsible for the patient's care): what is your job title? *Free text limit to 50 letters*
- The local reporter
- Both

Clinician Job Title: *free text limit to 50 letters*

Outcome Details

5. Please provide additional information on the inclusion criteria

Death

Please provide the cause of death. ... *free text limit to 50 letters*

Brain damage

Select the worst outcome observed

- Delayed awakening
- CVA
- Seizures
- Behavioural or cognitive impairment
- Other [please specify, *free text limit to 50 letters*]

Emergency surgical or needle/cannula airway

Unanticipated ICU admission as a result of a problem with a airway management.

Reason for ICU admission if appropriate

Aspiration of gastro-oesophageal contents

Myocardial infarction or cardiac problem

Airway trauma/oedema

Failure to awaken or elective ventilation to treat suspected brain injury

Other [please specify, *free text limit to 50 letters*]

6. Outcome at time of form completion

Death

Partial recovery *specify* *free text limit to 50 letters*

Full recovery

7. Time to 'recorded outcome' from airway incident

Immediate

<24hrs

24hrs -1wk

1wk-1month

>1mth

8. Please provide a brief description of the event. *Do not include any patient identifying details*

..... *free text limit to 250 letters*

.....

Circumstances Surrounding the Event

9. Please record the planned procedure, operation or presentation
..... **free text limit to 200 letters**

10. NCEPOD urgency click the symbol for definitions

Emergency

Urgent

Scheduled

Elective

11. Grade of most senior anaesthetist who assessed the patient before anaesthesia

None

Professor

Consultant

Associate Specialist

Staff Grade

Trust Grade

Specialist trainee ST 1-7 dropdown list to select one ST1, ST2, ST3, ST4, ST5, ST6, ST7

Other anaesthetist, please indicate :... **free text limit 20 letters**

12. Was this person a locum anaesthetist? Yes No

13. Grade of most senior anaesthetists present at the start of airway event

Anaesthetist 1 dropdown list to select one of the entire list in No.12 **locum** Yes No

Anaesthetist 2 dropdown list to select one of the entire list in No.12 **locum** Yes No

Grade of most senior surgeon present dropdown list to select one of the entire list in No.12 **locum** Yes No

14. Time of day of the airway event

00:00 - 08:00

08:01 - 18:00

18:01 – 24:00

15. Location of airway event

- Anaesthetic room
- Operating room
- Radiology department
- Recovery room
- Labour ward / maternity unit
- Hospital ward
- In transit between two of the above
- Other **free text limit to 50 letters** ...

16. Timing of event in relation to the anaesthetic

- At induction of general anaesthesia
- Intraoperative during general anaesthesia
- Intraoperative during local or regional anaesthesia
- Conversion of local or regional anaesthesia to general anaesthesia
- During emergence from anaesthesia or sedation
- Postoperative in recovery room
- Postoperative after discharge from recovery room

Patient Characteristics at the time of the airway event

17. Gender Male Female

Age <1
 1- 4
 5 -10
 11- 20
 21- 40
 41- 60
 61 – 80
 > 81

ASA Grade I / II / III / IV / V (click one option)

Weight __:__ kg Height __:__mts BMI

- Body habitus
- cachectic
 - normal
 - obese

18. Co-morbidities

- | | |
|--|--|
| <input checked="" type="checkbox"/> Hypertension or ischaemic heart disease | <input checked="" type="checkbox"/> Obstructive sleep apnoea |
| <input checked="" type="checkbox"/> Left ventricular failure | <input checked="" type="checkbox"/> Pregnancy |
| <input checked="" type="checkbox"/> Aortic stenosis | <input checked="" type="checkbox"/> Scleroderma |
| <input checked="" type="checkbox"/> Chronic obstructive pulmonary disease | <input checked="" type="checkbox"/> Rheumatoid arthritis |
| <input checked="" type="checkbox"/> Asthma | <input checked="" type="checkbox"/> Burns (acute or chronic) |
| <input checked="" type="checkbox"/> Renal failure | <input checked="" type="checkbox"/> Congenital deformity of head/neck |
| <input checked="" type="checkbox"/> Liver disease | <input checked="" type="checkbox"/> Previous radiotherapy to head/neck |
| <input checked="" type="checkbox"/> Diabetes mellitus | <input checked="" type="checkbox"/> Anticoagulated |
| <input checked="" type="checkbox"/> Obesity | |
| <input checked="" type="checkbox"/> Other <i>free text limit to 50 letters</i> | |

19. In trauma patients please list *relevant* major injuries
free text limit to 50 letters

20. Were problems with ventilation or oxygenation evident or suspected before the airway event?

- Yes No.

If yes

Please indicate why? *free text limit to 50 letters*

Suspected cause/diagnosis
free text limit to 50 letters

21. What was the pre-event SpO₂ *free numerals* on what FiO₂ *free numerals*

Airway Assessment

22. Was difficulty with airway management anticipated?

- Yes No

If Yes

Was this:-

- Difficult pre-oxygenation
- Difficult face mask ventilation

Difficult laryngoscopy and or intubation

Difficult LM or SAD placement

Difficult direct tracheal access

23. Was patient co-operation anticipated to be a problem? Yes No

24. Was an airway assessment recorded? Yes No

25. Which of the following tests were performed and suggested a potential airway problem

Mallampati	<input checked="" type="radio"/> Normal	<input checked="" type="radio"/> Abnormal	<input checked="" type="radio"/> Not done
Mouth opening	<input checked="" type="radio"/> Normal	<input checked="" type="radio"/> Abnormal	<input checked="" type="radio"/> Not done
Neck movement	<input checked="" type="radio"/> Normal	<input checked="" type="radio"/> Abnormal	<input checked="" type="radio"/> Not done
Jaw protrusion	<input checked="" type="radio"/> Normal	<input checked="" type="radio"/> Abnormal	<input checked="" type="radio"/> Not done
Thyromental distance	<input checked="" type="radio"/> Normal	<input checked="" type="radio"/> Abnormal	<input checked="" type="radio"/> Not done
Sternomental distance	<input checked="" type="radio"/> Normal	<input checked="" type="radio"/> Abnormal	<input checked="" type="radio"/> Not done

26. Were special investigations performed to evaluate the airway? Yes No

If yes indicate below

CXR Reviewed by anaesthetist Yes No

Neck Xray Reviewed by anaesthetist Yes No

CT SCAN neck Reviewed by anaesthetist Yes No

CT SCAN chest Reviewed by anaesthetist Yes No

MRI neck Reviewed by anaesthetist Yes No

MRI chest Reviewed by anaesthetist Yes No

Fibreoptic nasendoscopy Reviewed by anaesthetist Yes No

Other [Please specify which *free text limit to 50 letters*]

27. Was the patient at increased risk of aspiration? Yes No

If yes

Why?

Recent ingestion

Delayed gastric emptying

Intestinal obstruction

Pregnancy

Gastroesophageal reflux

Other *specify* *free text limit to 50 letters*

28. Was a history of airway problems available? Yes No

If yes what was the type of problem? **Specify** *free text limit to 50 letters*

Was the anaesthetist aware of this before inducing anaesthesia? Yes No

If no what was the reason that the anaesthetist was not aware of this?

free text limit to 50 letters

29. If the patient had previous airway problems or caused concern this information was:-

Recorded in notes Yes No

Recorded in anaesthetic dept Yes No

Supplied to patient in writing Yes No

Supplied to patient verbally Yes No

Supplied to GP Yes No

Contained on a Medicalert bracelet Yes No

Unavailable at the time of the event Yes No

The primary plan for anaesthesia

For intra or post-operative airway events (i.e. not at induction) please record the anaesthetic plan used to manage the event

30. What was the primary anaesthetic plan? Please select one from list below:-

General anaesthesia

Regional anaesthesia +/- sedation

Local anaesthesia + sedation

Sedation only

Local anaesthesia only

31. Please indicate below the primary airway management plan with regard to:-

1. Anaesthesia or sedation
2. Suppression of reflexes
3. The use of airway devices

31.1 Anaesthesia

- None
- General anaesthesia intravenous induction
- General anaesthesia inhalational induction
- IV sedation
- Intubation under local anaesthesia with or without sedation

31.2 Drugs used to suppress airway reflexes

- None
- Local anaesthetic agent - topical administration
- Local anaesthetic agent – intravenous administration
- Opioid
- Suxamethonium
- Other neuromuscular blocking agent
- Other ... *free text limit to 50 letters*

31.3 Airway device—primary plan

- None
- Hudson mask / nasal cannulae
- Anaesthetic facemask +/- oropharyngeal airway,
- Laryngeal mask airway, (LM)
- Another supraglottic device (SAD) specify *free text limit to 20 letters*
- Tracheal intubation (TI) (including fiberoptic intubation)
- New tracheostomy or cricothyroidotomy *free text limit to 20 letters*
(Specify: surgical, large bore >3mm or small bore <3mm)
- Rigid bronchoscopy
- Use of already existing tracheostomy or tracheal tube
- Other *free text limit to 50 letters*

Conduct of Anaesthesia

- 32.** Were there any relevant problems with the anaesthetic equipment?
Was the equipment checked beforehand? Yes No
 Yes No
- 33.** Please indicate below who checked the anaesthetic equipment before use
1. Anaesthetist Yes No
2. ODP/anaesthetic nurse Yes No
3. Both 1 and 2 Yes No
- 34.** Please indicate the monitoring devices in use employed at the onset of the airway event
- SpO₂ Yes No
- ECG Yes No
- EtCO₂ Yes No
- FiO₂ Yes No
- NIBP Yes No
- Invasive BP Yes No
- Inspired agent monitor Yes No
- Depth of neuromuscular blockade Yes No

Airway Management Techniques Employed

Please examine the following lists very carefully, then select in order each of the techniques used. Your selections will appear in order in the box opposite questions 38 and 39. If you revert to a technique used previously please record each attempt: for example if bag mask ventilation was employed first, then failed and a disposable LM was employed, which failed and then facemask was attempted again for facemask should appear first and third on the list and the disposable LM should be second. When the list is complete please check that the final order is correct, incorrect entries may be removed with the button below.

35. Pre-oxygenation

- ↓ With Hudson type mask
- ↓ With anaesthetic mask and circuit

36. Non intubation airway maintenance

- ↓ Facemask +/- oropharyngeal / nasal airway
- ↓ Classic LMA
- ↓ Disposable LM: which? **free text limit to 20 letters**
- ↓ ILMA
- ↓ Proseal LMA
- ↓ Flexible LMA
- ↓ iGel
- ↓ Combitube
- ↓ Other **free text limit to 20 letters**

37. Tracheal intubation with direct laryngoscopy

- ↓ Macintosh laryngoscopy without bougie
- ↓ Macintosh laryngoscope with bougie
- ↓ Straightblade laryngoscope without bougie
- ↓ Straightblade laryngoscope with bougie
- ↓ McCoy without bougie
- ↓ McCoy with bougie
- ↓ Other **free text limit to 20 letters**
- ↓ Other laryngoscope
- ↓ Lighted bougie

38. Flexible fibreoptic intubation +/- aids

- ↓ Flexible fibreoptic intubation using a tracheal tube.
- ↓ Flexible fibreoptic intubation through an SGA (including ILMA) using a tracheal tube.
- ↓ Flexible fibreoptic intubation using an Aintree catheter.
- ↓ Flexible fibreoptic intubation through an SGA (including ILMA) using an Aintree catheter.
- ↓ Flexible fibreoptic intubation using a guidewire.
- ↓ Flexible fibreoptic intubation through an SGA (including ILMA) using a guidewire.

39. With a rigid indirect laryngoscope

- ↓ Pentax AWS
- ↓ Upsher
- ↓ Bullard
- ↓ Wu
- ↓ Glidescope
- ↓ Airtraq
- ↓ TruView / Viewmax
- ↓ McGrath
- ↓ Other **free text limit to 20 letters**

40. With optical stylet

- ↓ Bonfils
- ↓ Levitan
- ↓ SOS (Shikani)
- ↓ Other **Specify free text limit to 20 letters**

41. With a conduit

- ↓ CTrach

42. Blind intubation

- ↓ Nasal apnoeic
- ↓ Nasal spontaneous respiration
- ↓ Oral apnoeic
- ↓ Oral spontaneous respiration
- ↓ ILMA without fibreoptic endoscope

43. Direct airway access

- ↓ Fine bore < 3mm needle/cannula cricothyroidotomy
- ↓ Wide bore > 3mm cannula cricothyroidotomy uncuffed
- ↓ Wide bore > 3mm cannula cricothyroidotomy cuffed
- ↓ Surgical cricothyroidotomy uncuffed
- ↓ Surgical cricothyroidotomy cuffed
- ↓ Surgical tracheostomy
- ↓ Percutaneous tracheostomy

44. ↓ Other **free text limit to 50 letters**

Confirmation of tracheal tube placement

45. Was tracheal tube misplacement the primary airway problem? Yes No (go to 48)

46. How was correct tracheal tube placement confirmed?

- Tracheal intubation was not performed
- Tracheal tube seen to pass between cords
- Observation of bilateral chest movement
- Auscultation
- Oesophageal detector device (Wee type balloon or syringe test)
- Disposable CO₂ detector
- End tidal CO₂ measurement
- Fibreoptic visualisation of carina
- Improvement in oxygenation
- No active effort made to confirm position

47. At what stage did the airway event which caused this patient to meet the inclusion criteria occur?

At or before induction Yes

During the procedure Yes

At emergence or after anaesthesia Yes

Intraoperative problems

48. Did the airway event develop intra-operatively i.e. not at induction, on emergence or following anaesthesia?

Yes please continue No (go to 60)

49. Problems developed with:-

- Oxygenation
- Ventilation
- Tracheal tube displacement
- Supraglottic airway displacement
- Airway obstruction

50. What was the cause of the problem? *free text limit to 30 letters*

51. When did this become apparent?

In the anaesthetic room

On transfer to the operating room

After change of position

During a change of technique

At change of anaesthetist

During routine maintenance without warning

During routine maintenance caused by another problem eg anaphylaxis please specify
free text limit to 30 letters

52. Were lung isolation techniques being employed?

Yes

No

If yes how was this performed:-

Double lumen tube

Single lumen tube with bronchial blocker

53. Patient position

Supine

Prone

Lateral

Lithotomy

Other *free text limit to 30 letters*

54. Was access to the airway limited by the site of the operation?

Yes

No

55. Was access to the airway limited by the patient's position?

Yes

No

56. Were there problems occurred with the anaesthetic circuit, ventilator or monitoring equipment?

Yes

No

57. Was the airway device displaced?

Yes

No

58. Was the airway device obstructed?

Yes

No

59. Was the airway device perforated or divided?

Yes

No

Airway problems at the end of anaesthesia

60. Did the airway event develop on emergence from, or after anaesthesia?

- Yes No (go to 65)

61. Where did this occur?

- Operating room
 In transit between operating room and recovery area
 Recovery area
 In transit to ward
 On ward

62. What was the problem?

- Airway obstruction,
 Hypoventilation
 Other *free text limit to 30 letters*

63. Was this problem apparent immediately after extubation or removal of SAD? Yes No

64. Did the airway problem follow airway problems at induction or during the procedure. Yes No


If yes please provide this information later in the free text section at the end of the form

Details of anaesthesia and airway management

In the following sections please provide details on the anaesthetic techniques used to manage the airway event.

65. Was sedation used without general anaesthesia to manage the airway problem?

- Yes No (go to 70)

66. Drugs used for sedation 

Drug name *free text limit to 20 letters.*

Bolus administration Yes No Infusion Yes No TCI Yes No

Drug name *free text limit to 20 letters.*

Bolus administration Yes No Infusion Yes No TCI Yes No

Drug name *free text limit to 20 letters.*

Bolus administration Yes No Infusion Yes No TCI Yes No

Drug name *free text limit to 20 letters.*

Bolus administration Yes No Infusion Yes No TCI Yes No

67. Sedation, please record the highest score achieved

- 1. Awake
- 2. Drowsy responding to commands appropriately
- 3. Drowsy responding to commands inappropriately
- 4. Responding to physical stimulus only
- 5. Unresponsive

68. Was Supplementary O₂ delivered? Yes No

69. Was exhaled CO₂ monitored? Yes No

Intubation under local anaesthesia with or without sedation

70. Was intubation under local anaesthesia without a general anaesthetic employed to manage the airway problem?

Yes No (go to 81)

71. Please indicate below the intubation method(s) employed or attempted

- Direct laryngoscopy
- Blind intubation (specify technique) *free text limit to 50 letters*
- Flexible fibreoptic intubation
- Rigid fibreoptic intubation (specify) *free text limit to 50 letters*
- Surgical airway
- Other (e.g. via ILMA, Bonfils, videoscope) (specify) *free text limit to 50 letters*

72. Which route was planned? Oral / Nasal / Tracheostomy [click one option](#)

73. Was IV access obtained before the airway event? Yes No

Method of airway anaesthesia

74. Was an anticholinergic agent given? Yes No

If yes

Drug Atropine / Glycopyrrolate / Hyoscine [click one option](#)

Route Intravenous / Intramuscular [click one option](#) Dose in microgrammes *free numerals*

Route and time lapse between administration and start of airway anaesthesia

IV 0 mins / 0-10 mins / 10-20 / 20-60 / >60 [click one option](#)

IM 0 mins / 0-15 mins / 15-30 / 30-60 / 60-120 / >120 [click one option](#)

75. Local anaesthetic technique, which of the following were employed?

Lidocaine/other

Other **free text limit to 20 letters** [click one option](#)

Dose **free numerals**

- Nebulisation
- Nerve blocks
- Trans-laryngeal/ tracheal anaesthesia
- Spray as you go' topical via a fibrescope
- Other **free text limit to 30 letters**

76. Was local anaesthesia supplemented by sedatives / opioids / induction agent? Yes No

77. How was supplementary oxygen delivered during endoscopy?

Not used/ via endoscope/ nasal cannula(e) / open mask / anaesthetic circuit [click one option](#)

78. Type and size of tracheal tube used at 1st attempt Type **free text limit to 20 letters** size **free numerals**
Type and size of tracheal tube used at last attempt Type **free text limit to 20 letters** size **free numerals**
Intubation under local anaesthesia Succeeded failed

79. Problems observed during intubation under local anaesthesia.
Please select more than one if necessary

- Lack of cooperation
- Inadequate analgesia
- Airway obstruction from excess sedation
- Airway obstruction from other cause **free text limit to 20 letters**
- Bleeding
- Contamination with secretions
- LA toxicity
- Inability to pass tracheal tube
- Equipment failure

80. Primary reason for failure of intubation under local anaesthesia.
Please select one

- Lack of cooperation
- Inadequate analgesia
- Airway obstruction from excess sedation

- Airway obstruction from other cause.....
- Bleeding
- Contamination with secretions
- LA toxicity
- Inability to pass tracheal tube
- Equipment failure

Inhalational or spontaneous breathing general anaesthesia

81. Was inhalational or spontaneously breathing general anaesthesia used to manage the airway problem?

- Yes No (go to 93)

82. Was an IV Access obtained before the airway event?

- Yes No

83. Was an anticholinergic agent administered?

- Yes No

If yes which drug Atropine / Glycopyrrolate / Hyoscine (select one or more)

84. Which gases were used?

N₂O / Air / Helium (select one or more)

FiO₂ free numerals with decimal point.

85. Which inhalational agents were used?

Indicate 1st then 2nd and 3rd if more than one was used.

- | | | | | |
|-------------|--------------------------|--------------------------|--------------------------|---|
| Halothane | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | click one option) |
| Enflurane | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | next line to select any other two / one option only |
| Isoflurane | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Desflurane | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Sevoflurane | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

86. Was inhalational anaesthesia supplemented by sedatives, opioids or an induction agent? Yes

- No

Drug free text limit to 30 letters
 Drug free text limit to 30 letters
 Drug free text limit to 30 letters

87. Was supplementary local anaesthetic used?

- | | | | |
|---------------------|---------------------------|--------------------------|---|
| Topical application | <input type="radio"/> Yes | <input type="radio"/> No | drug free text limit to 30 letters |
| IV administration | <input type="radio"/> Yes | <input type="radio"/> No | drug free text limit to 30 letters |

88. Indicate if any of the following difficulties arose during inhalational induction:-

- Airway obstruction including laryngospasm
- Regurgitation
- SpO₂ < 90%
- Other specify *free text limit to 30 letters*

89. Was direct laryngoscopy attempted? Yes No
 If yes please grade laryngoscopy conditions Good / adequate / inadequate *click one option*

90. Was tracheal intubation attempted? Yes No
 If yes please grade intubation conditions Good / adequate / inadequate *click one option*

91. What was the primary endpoint selected to indicate adequate depth of anaesthesia for airway instrumentation?

- None
- Pupillary signs
- Reduction in blood pressure
- Change in respiratory rate
- Respiratory pattern
- Time
- End tidal inhalational agent concentration
- Other *free text limit to 30 letters*

92. Was a neuromuscular blocking agent given before direct laryngoscopy?
 Yes No
 If yes record drug *free text limit to 20 letters* dose *free numerals* mg.

Intravenous general anaesthesia including muscle relaxants and / or TIVA

93. Was Intravenous general anaesthesia or TIVA used to manage the airway problem?
 Yes No go to 102

94. Was rapid sequence induction (RSI) planned? Yes No

95. Was the patient pre-oxygenated? Yes No

If **yes** why was the patient pre-oxygenated?

RSI / routine / pre-existing hypoxaemia / airway problem anticipated *(select one or more)*

If **no** Why not?
 not considered necessary / patient uncooperative / time pressure *(select one or more)*

96. Which of the following most closely resembles the method of preoxygenation

- 100% O₂ for 3 minutes
- 3 vital capacity breaths
- Measured end-tidal O₂ level >90% before induction
- Other

97. Induction agent
 STP / propofol / etomidate / ketamine/ midazolam / other specify

98. Opioids used at or before induction
 None / fentanyl / alfentanil / morphine / remifentanil / other specify

99. Muscle relaxant used at induction
 None / suxamethonium / atracurium / rocuronium / other
 Dose of muscle relaxant mg.

100. Was cricoid force applied? Yes No
 If yes

Were there problems associated with the application of cricoid force? Yes No

Was this released before confirmed tracheal intubation? Yes No

If so did laryngoscopic view improve? Yes No

Were gastric contents seen in the oropharynx? Yes No

If so when?

Before release of cricoid force

After release of cricoid force

101. Were there any problems with IV access or drug delivery? Yes No

Lost access

Lost drugs

Other

Mask ventilation and tracheal intubation

102. Was mask ventilation or tracheal intubation employed to manage the airway event?
 Yes No go to 126

103. Initial spontaneous ventilation
 Maintenance of airway with facemask was
 Maintenance of airway by (SAD) was
 Drop down list of definitions when cursor is on an option
 Optimal. Achieved without multiple attempts and without difficulty or complications.
 Impaired. Less than optimal but achieved and able to be continued.
 Inadequate. Barely achieved and once achieved not sustainable for prolonged period.
 Impossible. Not achieved despite best efforts.

104. Initial manual ventilation
 Initial ventilation via mask was

Initial ventilation via LMA or SAD was
The initial ventilation via tracheal tube was

Optimal / impaired / inadequate / impossible / not attempted [click one option](#)
Optimal / impaired / inadequate / impossible / not attempted [click one option](#)
Drop down list of definitions when cursor is on an option
Optimal. Achieved without multiple attempts and without difficulty or complications.
Impaired. Less than optimal but achieved and able to be continued.
Inadequate. Barely achieved and once achieved not sustainable for prolonged period.
Impossible. Not achieved despite best efforts.

105. Was laryngoscopy attempted? Yes No
Best view on direct laryngoscopy was 1 / 2a / 2b / 3a / 3b / 4 / D/L not performed / not recorded [click one option](#)

If the view was poor was OELM  or BURP  performed? Yes No


106. On initial laryngoscopy the larynx was Normal / distorted / abnormal / not seen / not recorded [click one option](#)

Was intubation difficult despite adequate laryngeal view? Yes No
If yes why? [free text limit to 50 letters.](#)

107. Did the ability to manage the airway change? Yes No


If yes what changed?

Mask ventilation became Optimal / impaired / inadequate / impossible / unchanged [click one option](#)

Ventilation via supraglottic airway device became  Optimal / impaired / inadequate / impossible / unchanged [click one option](#)

108. During intubation attempts did any of the following materially impede intubation:-

Regurgitation	<input type="radio"/> Yes	<input type="radio"/> No
Bleeding into the airway	<input type="radio"/> Yes	<input type="radio"/> No
Oedema	<input type="radio"/> Yes	<input type="radio"/> No
Excessive secretions	<input type="radio"/> Yes	<input type="radio"/> No
Pus	<input type="radio"/> Yes	<input type="radio"/> No

109. In total how many attempts  were made to perform tracheal intubation? 0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 10+ [click one option](#)

110. Was fiberoptic intubation performed or attempted? Yes No
After how many previous attempts at tracheal intubation was fiberoptic intubation attempted?
0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 10+ [click one option](#)

111. Was fiberoptic intubation performed or attempted through a supraglottic airway? Yes No
After how many previous attempts at tracheal intubation was fiberoptic intubation through a supraglottic airway performed?
0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 10+ [click one option](#)

112. What was the time from the start of 'problems' to securing the airway or abandonment? hh:mm

113. For how long was ventilation difficult or absent? [free numerals](#) hh:mm

About hypoxia

114. For how long was oxygenation poor (SpO₂ recorded or estimated to be <85%) [free numerals](#)hh:mm

Profound hypoxia

115. For how long was oxygenation very poor (SaO₂ recorded or estimated to be <70%) [free numerals](#)hh:mm

116. What was the lowest recorded SpO₂? [free numerals](#)

117. Was effective ventilation and oxygenation achieved? Yes No
At this point what was the SpO₂ [free numerals](#) on what FiO₂ [free numerals](#)

About facemask ventilation

118. Were problems experienced with mask ventilation during management of the airway event?
 Yes No (go to 126)

119. Indicate the methods employed below

Bag- mask ventilation / jaw thrust / an oropharyngeal airway / multi-person bag-mask ventilation
It was possible to maintain oxygenation or an SpO₂ > 85%

- Throughout
- Initially possible but not possible later, i.e. situation deteriorated
- Initially not possible but possible later i.e. situation improved
- Never, at any stage was ventilation possible

120. Number of hands used One / Two / Three / Four / Five / Six

121. Mask type *free text limit to 20 letters*

Please indicate the cause of problems with mask ventilation?

122. Ineffective seal due to

- | | |
|--|--|
| <input checked="" type="checkbox"/> Beard | <input checked="" type="checkbox"/> Obesity |
| <input checked="" type="checkbox"/> Facial deformity | <input checked="" type="checkbox"/> Burns |
| <input checked="" type="checkbox"/> Radiotherapy | <input checked="" type="checkbox"/> Trismus |
| <input checked="" type="checkbox"/> Swelling | <input checked="" type="checkbox"/> Limited access to airway |

123. Loss of gas pressure

- Gas failure
- Circuit failure

124. Airway obstruction

- Limited mouth opening,
- Limited neck extension
- Lesion of or within the airway (including tumour, laryngeal oedema or foreign body)
- Laryngospasm
- Regurgitation

125. Other causes of failure please list *free text limit to 50 letters*

Use of supraglottic airway devices

126. Were problems experienced with a supraglottic airway during the management of the airway event? Yes No (go to 133)

127. Device(s) used *free text limit to 20 letters*

128. Anticipated problems *free text limit to 50 letters*

129. Actual problems *free text limit to 50 letters*

130. Were all necessary sizes available? Yes No

131. If a supraglottic device was used to relieve upper airway obstruction did it succeed? Yes No

132. If a supraglottic device failed what was the cause of failure?

- Inability to insert
- Gas leak/ poor seal
- Airway obstruction
- Regurgitation

Flexible Fibreoptic intubation

133. Was flexible fibreoptic intubation attempted or performed during the management of the airway event?

- Yes No (go to 143)

134. Was this attempted or performed under local or general anaesthesia?
You may select both if this is appropriate.

- General anaesthesia
- Local

135. Was an oropharyngeal guide used?
If yes go to
Which ones were tried?

- Yes No

- Patil
- Berman
- Breathesafe
- Other *free text limit to 20 letters*

136. Was a supraglottic airway used as a guide?
If yes go to
Which ones were tried?

- Yes No

- LMA classic
- ILMA
- disposable LM
- iGel
- Other please specify *free text limit to 20 letters*

137. Was the trachea located with fibrescope

- Yes No

138. If more than one guide was used please indicate the one which was effective *free text limit to 20 letters*

139. What type of tracheal tube was used Size *free numerals*

Type *free text limit to 20 letters*

140. Was difficulty encountered passing the tracheal tube?

- Yes No

141. Was an Aintree intubation catheter used Yes No

142. Were problems observed during flexible fiberoptic intubation?: Yes No

- Inadequate anaesthesia
- Airway obstruction
- Contamination with blood or secretions
- Inability to pass tracheal tube
- Equipment failure

Direct tracheal access

143. Was direct tracheal access attempted or obtained during the management of the airway event? Yes No (go to 152)

144. Indicate which was / were performed

- Surgical tracheostomy
- Surgical cricothyroidotomy
- Fine bore cannula cricothyotomy < 3 mm
- Large bore cannula cricothyroidotomy > 3 mm
- Percutaneous tracheostomy

Was the device **cuffed** **uncuffed** [click one option](#)

145. Which specific devices were used? [free text limit to 30 letters](#) successful / failed [click one option](#)

By Whom

1st user Speciality [free text limit to 20 letters](#) Grade [dropdown list to select one of the entire list in No.12](#)
2nd user Speciality [free text limit to 20 letters](#) Grade [dropdown list to select one of the entire list in No.12](#)
3rd user Speciality [free text limit to 20 letters](#) Grade [dropdown list to select one of the entire list in No.12](#)

146. How many attempts were made before the device was successfully placed in the trachea or was abandoned?

1 / 2 / 3 / 4 / 5 / 6 [click one option](#)

147. How long did the procedure take? [hh:mm](#)

148. How was placement confirmed?

- Aspiration of air
- Observation of chest rising and falling

- Capnography
- Auscultation
- Improved oxygenation
- inspection with fibrescope

149. Once placed did it provide effective oxygenation?

Yes

No

150. What mode of ventilation was used?

High pressure source ventilation: (if selected go to next line)

Manujet, Sanders injector.

Other high pressure device specify *free text limit to 50 letters*

HFJV

Low pressure source ventilation: (if selected go to next line)

Anaesthesia machine flush

Anaesthetic circuit

Other specify *free text limit to 50 letters*

151. Were any complications seen?

Bleeding

Surgical emphysema

Pneumothorax

Pneumomediastinum

Other please list *free text limit to 30 letters*

Availability of Help

152. Please record the grade of those present at induction of anaesthesia

Anaesthetist 1 dropdown list to select one of the entire list in No.12

Anaesthetist 2 dropdown list to select one of the entire list in No.12

Anaesthetist 3 dropdown list to select one of the entire list in No.12

Most senior surgeon present dropdown list to select one of the entire list in No.12

153. Please record the grade of anaesthetists present at the time the airway problem became apparent

Anaesthetist 1 dropdown list to select one of the entire list in No.12

Anaesthetist 2 dropdown list to select one of the entire list in No.12

Anaesthetist 3 dropdown list to select one of the entire list in No.12

Most senior surgeon present dropdown list to select one of the entire list in No.12

154. Was additional help/advice was requested?

Yes

No

If yes when

Before the airway problem became apparent

At the time the airway problem became apparent

When initial attempts to manage the problem failed

After the problem had been managed

155. At what stage was help requested?

Pre induction

Induction

Post induction

Perioperatively

Postoperatively

156. How long did it take for help to arrive?

<1 minute / 1-4 minutes / 5-30 minutes / >30 minutes

click one option

157. Help was requested from whom? And had they been informed or consulted before the event?

Request 1 Grade dropdown list to select one of the entire list in No.12 Specialty free text limit to 30 letters

informed before event

Yes

No

- Request 2 dropdown list to select one of the entire list in No.12 free text limit to 30 letters Yes No
- Request 3 dropdown list to select one of the entire list in No.12 free text limit to 30 letters Yes No
- Request 4 dropdown list to select one of the entire list in No.12 free text limit to 30 letters Yes No
158. Was an alternative anaesthetic technique available? Yes No
159. Was an alternative technique discussed? Yes No
160. Was it essential to proceed after the event occurred? Yes No

161. If tracheal intubation was attempted please list the grade of each intubator and the number of intubation attempts each made

Intubator	Grade	Specialty	Number of attempts
1st Intubator	dropdown list to select one of the entire list in No.12	free text limit to 30 letters	free numerals
2 nd	dropdown list to select one of the entire list in No.12	free text limit to 30 letters	free numerals
3 rd	dropdown list to select one of the entire list in No.12	free text limit to 30 letters	free numerals
4 th	dropdown list to select one of the entire list in No.12	free text limit to 30 letters	free numerals
5 th	dropdown list to select one of the entire list in No.12	free text limit to 30 letters	free numerals

162. List the anaesthetists present at the start, during or at the end of the event? Please give grades.

		At the start		During		At the end	
Doctor 1	dropdown list to select one of the entire list in No.12	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
Doctor 2	dropdown list to select one of the entire list in No.12	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
Doctor 3	dropdown list to select one of the entire list in No.12	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
Doctor 4	dropdown list to select one of the entire list in No.12	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
Doctor 5	dropdown list to select one of the entire list in No.12	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
Doctor 6	dropdown list to select one of the entire list in No.12	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No

Availability of equipment

163. Which piece of equipment most effectively improved the clinical condition? free text limit to 50 letters

How long did it take to arrive? hh:mm

163. Was all the equipment you needed to deal with this airway problem available Yes No
If no what was the root cause of the lack of availability? free text limit to 50 letters

165. Was available equipment not used due to lack of appropriate skills Yes No
If yes which items? free text limit to 50 letters

Supplementary information

166. Please record any additional information that will facilitate understanding of what occurred. **Do not include any information identifying the patient, the hospital or the clinician.**
free text limit to 200 letters

167. What went well?
free text limit to 200 letters

168. What went badly?
free text limit to 200 letters

169. Which of the following played an important role in the poor outcome?

- Defective knowledge
- Defective judgement
- Inadequate or malfunctioning equipment
- Defective training
- Team behaviour