Health Education Thames Valley

# FAILED INTUBATION DURING RSI: PLAN A, C & D

MODULE: NOVICE & AIRWAY

TARGET: NOVICE INITIAL ASSESSMENT OF COMPETENCY
ALL ANAESTHETISTS

BACKGROUND:

Management of the "Can't Intubate, Can't Ventilate" situation is a core skill for all anaesthetists. Optimal management of this situation should incorporate well-established Difficult Airway Society guidelines* and, where appropriate, local factors (relating to equipment availability and local protocols).

Demonstration of a failed intubation drill is part of the 'Initial Assessment of Competency' that novice anaesthetists undergo. This is a standardised scenario – so all participants undergo the same conditions with automated consequences for good practice e.g. adequate preoxygenation. This allows for standardised conditions for assessment of performance.

This scenario simulates a patient requiring an anaesthetic for an emergency operation with a high risk of aspiration, necessitating rapid sequence induction. This allows demonstration of a progression through the DAS guidelines for Plan A, Plan C and finally Plan D.

This scenario has been designed to be completed as part of the assessment process for the novice 'Initial Assessment of Competency' certificate.

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## RELEVANT AREAS OF THE ANAESTHETIC CURRICULUM

| | |
|---|---|
| IG_BS_07<br>AM_BS_04 | Demonstrates effective pre-oxygenation, including correct use of the mask, head position and clear explanation to the patient. |
| IG_BS_08 | In respect of intravenous induction:<br>• Makes necessary explanations to the patient<br>• Demonstrates satisfactory practice in preparing drugs for the induction of anaesthesia<br>• Demonstrates proper technique in injecting drugs at induction of anaesthesia<br>Manages the cardiovascular and respiratory changes associated with induction of general anaesthesia |
| IG_BS_10<br>AM_BS_05 | In respect of airway management:<br>• Demonstrates optimal patient position for airway management.<br>• Manages airway with mask and oral/nasopharyngeal airways<br>• Demonstrates hand ventilation with bag and mask<br>• Able to insert and confirm placement of a Laryngeal Mask Airway<br>• Demonstrates correct head positioning, direct laryngoscopy and successful nasal/oral intubation technique(s) and confirms correct tracheal placement.<br>• Demonstrates appropriate use of bougies.<br>• Demonstrates correct securing and protection of LMAs/tracheal tubes during movement, positioning and transfer. |
| IG_BS_12 | Demonstrates failed intubation drill |
| AM_BS_10 | Demonstrates management of “Can’t intubate, Can’t Ventilate” scenario. [Cross Reference; Critical incidents]. |
| AM_BS_14 | Demonstrates small and large bore needle cricothyrotomy and manual jet ventilation |
| AM_BS_15 | Demonstrates surgical cricothyroidotomy |
| CI_BK_13 | Difficult/failed mask ventilation |
| CI_BK_14 | Failed intubation |
| CI_BK_15 | “Can’t intubate, can’t ventilate” |
| CI_BS_01 | Demonstrates good non-technical skills such as: [effective communication, team-working, leadership, decision-making |
| CI_BS_02 | Demonstrates the ability to recognise a deteriorating situation early through careful monitoring |
| CI_BS_03 | Demonstrates the ability to respond appropriately to each incident listed above |
| CI_BS_04 | Shows how to initiate management of each incident listed above |
| CI_BS_05 | Demonstrates ability to recognise when a crisis is occurring |
| CI_BS_06 | Demonstrates how to obtain the attention of others and obtain appropriate help when a crisis is occurring |

## INFORMATION FOR FACULTY

### LEARNING OBJECTIVES:

- Applied understanding of the failed intubation protocols – Plan A, C & D
- Recognise problem early, call for help early
- Local variance to published guidelines e.g. Equipment availability and locations

### SCENE INFORMATION:

- Location: Anaesthetic Room

  (GA for strangulated inguinal hernia with high risk of bowel involvement and conversion to laparotomy. Unexpected difficult intubation with rapid desaturation and eventual need for cricothyroidotomy)

### EQUIPMENT & CONSUMABLES

Manikin – On theatre trolley.
Checked anaesthetic machine
Stocked Airway trolley & Simulated Anaesthetic drugs
Plan D equipment, either:
- Scalpel and #6 COETT
- Ravussin needle and Manujet (or local equipment)

IV Fluids and giving set
Self-inflating Bag-valve-mask

### PERSONS REQUIRED

Anaesthetic Novice
Anaesthetic Assistant
Third person in the room

Anaesthetic Senior Trainee/Consultant (Optional)

### PARTICIPANT BRIEFING: (TO BE READ ALOUD TO PARTICIPANT)

You are the anaesthetist for the emergency list. The next patient has a strangulated right inguinal hernia, which the surgeon believes has a reasonable chance of conversion to laparotomy due to bowel involvement. The patient is William James, a 62 year old who has had no previous operations. He has had 3-4 days of abdominal pain, hernia pain and a few episodes of vomiting in the last 24 hours. He has no other medical problems, no medications and has had previous skin reaction to penicillin. He has fasted for 8 hours, but has vomited in the last 4 hours.

His airway assessment reveals a Mallampati score of 2, good mouth opening and jaw slide, but slightly limited neck movement.

His blood tests are normal.

### 'VOICE OF MANIKIN' BRIEFING:

You are William James, a 62-year-old man. You have never had an operation before. You have no medical problems, but have had a long-standing inguinal hernia on the right side. Over the last few days this has started to hurt more and more, and you have been vomiting over the last 24 hours. You don't usually take medications, but have been taking Paracetamol over the last few days. You developed a rash with Penicillin when you were a child and have avoided it since.

'ANAESTHETIC ASSISTANT' BRIEFING:

The anaesthetist is going to experience a difficult airway. Be supportive to their requests and instructions. Do not volunteer suggestions unless the participant is particularly junior or is significantly struggling.

If the participant is relatively experienced/senior, then you may consider to act as relatively inexperienced (i.e. Not anticipating the next requests, not knowing where equipment is and passing equipment to anaesthetists inappropriately).

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## CONDUCT OF SCENARIO

**EXPECTED ACTIONS**

- Ensure that anaesthetic machine is checked.
- Ensure induction/emergency drugs are drawn up and correctly labelled.
- Review anaesthetic plan with assistant (RSI, size of Laryngoscope and ETT)
- Allow assistant to perform check-in and WHO.
- Review history and exam if required.
- Attach monitoring
- Check IV access
- Optimise position of patient
- Suction on and ready at hand
- Ensure that table tilts head down
- Ensure presence of third person In room
- Pre-oxygenate
- Give appropriate RSI drugs
- Position for laryngoscopy

**INITIAL SETTINGS**

A: Patent and Self-maintained
B: RR 16, SpO2 96% RA
C: HR 90 (Sinus), BP 135/80, IV Access
D: Eyes open and alert. Calm but anxious.
E: Hospital gown, TEDs.

**RAPID SEQUENCE INDUCTION**

A: **Fixed neck, laryngospasm, tongue swelling, maximal airway resistance.**
B: **RR falls to 0 after 45 seconds after Suxamethonium**. If preoxygenation adequate then SpO2 falls to 85% over 5 mins. (If inadequate, SpO2 fall to 85% over 4 mins. If none given, SpO2 falls to 85% over 2 mins). **SpO2 remains at 85% for 1 minute**.
C: HR 100 (Sinus), BP 90/50.
D: Eyes closed (AVP**U**).

**EXPECTED ACTIONS**

- Plan A:
  - No more than 3 attempts at direct laryngoscopy with changes to technique and equipment use with each attempt.
  - Call for help after 2nd failed attempt.
  - Announce failed intubation.
- Plan C:
  - Face mask ventilation with

**INTUBATION ATTEMPTS**

A: Relax neck stiffness to allow positioning for cricothyroidotomy.
B: Over further 3 mins, SpO2 falls to 70%.
C: See circulatory changes below.
D: Eyes closed (AVP**U**).

**EXPECTED ACTIONS**

- Plan D: "Can't intubate, Can't Ventilate"
  - **Either** cannula or surgical cricothyroidotomy
  - Assemble equipment
  - Position patient – maximal neck extension
  - Identify landmarks

**CANNULA CRICOTHYROIDOTOMY**

- Aspirate during cannula insertion
- Secure cannula position
- Assemble Manujet and connect
- If fails → surgical cricothyroidotomy

**SURGICAL CRICOTHYROIDOTOMY**

- Stab incision through skin
- Blunt dissection
- Insertion of ET tube and cuff inflation
- Ventilation and confirmation of tube position

**RESOLUTION**

Scenario ends when oxygenation occurs or at discretion of faculty

# ANAESTHETIC RECORD SHEET

PATIENT DETAILS / ADDRESSOGRAPH
Hospital No.

SURNAME: James Williams
(Block Letters)
FORENAMES: 62 years old

Address:
Ward/Hosp.

DOB: Sex: M / F

NHS

Procedure(s) proposed:

Strangulated Right Inguinal Hernia repair

CEPOD CLASS: ELECTIVE / SCHEDULED / URGENT / EMERGENCY

## Anaesthetist's preoperative assessment by

**Name:** **Grade:** ☐Cons ☐AS ☐SG ☐Trainee _____

**Date:** **Time:** **Signature**

***Anaes / Surg history:***

No previous GAs

***Medical history:***

Fit and well usually.

Unwell with hernia and abdominal pain for the last 3-4 days. Vomiting has developed in the last 24 hours (last episode of vomiting 4 hours ago).

VTE Risk: ☐ High ☐ Low

***O/E***

Unremarkable

***Airway Assessment***

Mouth Opening:

MP Score: 1 2 3 4

Jaw: MP 2, mouth opening

Neck: >3cm, limited neck ROM.

TEETH

| 8 7 6 5 4 3 2 1 | 1 2 3 4 5 6 7 8 |
|---|---|
| 8 7 6 5 4 3 2 1 | 1 2 3 4 5 6 7 8 |

X = missing L = loose B = bridge
C = caps / crowns D = damaged

**ASA**

BP:

HR:

Temp:

Weight:

Height:

BMI:

Smoke:

Alcohol:

**Apfel** Score

**NBM since**

Solids: Fasted 8 hours

Clear Fluids:

Pregnancy :

Lactation:

**Relevant Medication:**

Nil regular

**ALLERGIES**

Penicillin

**Investigations**

| ☐ Haematology | ☐ Biochemistry | ☐ Coag. | ☐ ECG | Other: |
|---|---|---|---|---|
| FBC<br>Hb 12.4<br>WCC 12<br>Plts 278<br>Sickle: | U & E<br>NAD<br>Blood Sugar: | NAD<br>☐ Gp. & Save<br>☐ X - Match | NAD<br>☐ X - Ray | |

**CONSENT:** ☐ GA ☐ Sedation ☐ Epidural ☐ Spinal ☐ Regional ☐ Suppository
☐ PCA ☐ EPCA ☐ Other

Notes / Discussion / Technique proposed:

Consented for GA with RSI and local anaesthetic infiltration.
Risks explained: dental damage, sore throat, post-op nausea and vomiting.

☐ Anaesthetic Information leaflet received by patient

**For attention of ward staff:** (further investigations, fasting, continue/omit current medication, etc.)

**All orders / information regarding medication & fluids must be entered on patient's drug prescription & administration record**

SPG2299

| Date: | Anaesthetist(s): Name | Grade | Operation / Procedure(s): | Surgeon(s): Name | Grade |
|---|---|---|---|---|---|
| Location / Theatre: | | | | | |

**Supervising Anaesthetic Consultant (S-AC)** *Name:* ☐ AOD

*Location of S - AC* ☐ In Theatre ☐ In Th. Complex ☐ In Hospital ☐ Remote

*Discussed With S - AC* ☐

Anaesthetic Machine Check ☐ AR ☐ OR

*ANAESTHETIC TECHNIQUE:*

Vascular access:

**Airway & Size**
☐ Mask..... ☐ Nasal.....
☐ Oral ..... ☐ LMA.....

**Breathing System**
☐ Bain ☐ T-Piece
☐ Circle + Absorber

**Tracheal Intubation**
☐ Oral ☐ Nasal
☐ Tracheostomy
Size ..... ☐ Cuff
Type: .....
Laryngoscopy Grade
☐ Bougie ☐ ILMA ☐ FOB

Oral Pack ☐ In ☐ Out
NG Tube ☐ In ☐ Out

| Monitoring | AR | OR |
|---|---|---|
| $SpO_2$ | ☐ | ☐ |
| ECG | ☐ | ☐ |
| NIBP | ☐ | ☐ |
| $E_TCO_2$ | ☐ | ☐ |
| $F_I O_2$ | ☐ | ☐ |
| Anaes. Vapour | ☐ | ☐ |
| Disconnection | ☐ | ☐ |
| Airway Press. | ☐ | ☐ |
| Nerve Stim. | ☐ | ☐ |
| Temperature | ☐ | ☐ |
| | ☐ | ☐ |

| Drugs ▽ | (units) ▽ | Time: → | Total Dose |
|---|---|---|---|
| | | | |
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|---|---|---|---|
| Oxygen | $F_IO_2$ | L /min | |
| $N_2O$ / Air / Total Gas Flow | % | L /min | |
| Iso / Sevo / Des | $E_T$% | Mac | |
| Ventilation Mode (SV, VCV, PCV, Jet etc) | | | |
| Freq | / min | | |
| Tidal Volume | ml | | |
| Paw | cm $H_2O$ | | |
| Peep | cm $H_2O$ | | |

Events: ▽ Event No. →

100 $SpO_2$ % 90 — 250 BP HR — 200 — 150 — 100 — 50 — 0

HR ● Sys BP V Dia BP Λ

**Position Of Patient**
☐ Supine ☐ Prone
☐ L-Lateral ☐ R-Lateral
☐ Lithotomy ☐ DHS Table
☐ Deck Chair

**Tourniquet (site / times)**
Site:
On :
Off :

**DVT Prophylaxis**
☐ Heparin ☐ Rivaroxaban
☐ TEDS ☐ IC Boots

☐ Eyes Protected
☐ Pressure areas padded
☐ Warming Blanket
☐ Fluid Warmer
☐ Warming Mattress

$E_TCO_2$
IV Fluids
Blood Loss
Urine Out

RBH INT AR DOC May 2019 © RAD

Comments:

Post Op / recovery instructions:

*Anaesthetic Record Entered By:*

| Name: | |
|---|---|
| Grade: | |
| Signature: | |

## DEBRIEFING

POINTS FOR FURTHER DISCUSSION:

Technical:

- Difficult Airway protocols
- Procedural techniques
  - Cannula Cricothyroidotomy
  - Manujet/Sanders/Jet ventilation
  - Surgical Cricothyroidotomy

Non-technical:

- Situation awareness
- Prioritisation
- Task allocation
- Leadership
- Team working
- Communication and handover during crises

DEBRIEFING RESOURCES

1. Difficult Airway Society Guidelines: http://www.das.uk.com/guidelines/ddl.html
   http://www.das.uk.com/guidelines/downloads.html (NB. Free iDAS app available from iTunes)

2. NAP4: Major complications of airway management in the UK http://www.rcoa.ac.uk/index.asp?PageID=1089

3. NHS National Institute for Innovation and Improvement: 'Just a Routine Operation – Patient Story'
   http://www.institute.nhs.uk/safer_care/general/human_factors.html

## INFORMATION FOR PARTICIPANTS

KEY POINTS:

- Applied understanding of failed intubation protocols
- Recognise problem early and call for help early.
- Local variances to published guidelines (e.g. Equipment)

### RELEVANCE TO AREAS OF THE ANAESTHETIC CURRICULUM

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## WORKPLACE-BASED ASSESSMENTS

| Initial Assessment of Competency Certificate | |
|---|---|
| IAC_D06 | Demonstrates the routine for dealing with failed intubation on a manikin |
| IAC_D03 | Demonstrates cardio-pulmonary resuscitation on a manikin (0-3 months). |
| IAC_C08 | Discuss the routine to be followed in the case of a failed intubation |

| Basic Level WBPA's | |
|---|---|
| CIB_D01 | Demonstrates the management of the following specific conditions in simulation<br>• Failed intubation |
| CIB_D01 | Demonstrates the emergency management of the following critical incidents in simulation<br>• Cardiac and / or Respiratory arrest |

## FURTHER RESOURCES

1. Difficult Airway Society Guidelines:
   http://www.das.uk.com/guidelines/downloads.html (NB. Free iDAS app available from iTunes)

2. NAP4: Major complications of airway management in the UK
   http://www.rcoa.ac.uk/index.asp?PageID=1089

3. NHS National Institute for Innovation and Improvement: 'Just a Routine Operation – Patient Story'
   http://www.institute.nhs.uk/safer_care/general/human_factors.html

## PARTICIPANT REFLECTION:

What have you learnt from this experience? (Please try to list 3 things)

How will your practice now change?

What other actions will you now take to meet any identified learning needs?

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## PARTICIPANT FEEDBACK

Date of training session:.....

Profession and grade:.....

What role(s) did you play in the scenario? (Please tick)

| | |
|---|---|
| Primary/Initial Participant | |
| Secondary Participant (e.g. 'Call for Help' responder) | |
| Other health care professional (e.g. nurse/ODP) | |
| Other role (please specify): | |
| Observer | |

| | Strongly Agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| I found this scenario useful | | | | | |
| I understand more about the scenario subject | | | | | |
| I have more confidence to deal with this scenario | | | | | |
| The material covered was relevant to me | | | | | |

Please write down one thing you have learned today, and that you will use in your clinical practice.

How could this scenario be improved for future participants?
(This is especially important if you have ticked anything in the disagree/strongly disagree box)

## FACULTY DEBRIEF – TO BE COMPLETED BY FACULTY TEAM

What went particularly well during this scenario?

What did not go well, or as well as planned?

Why didn't it go well?

How could the scenario be improved for future participants?