Health Education Thames Valley

FAILED ELECTIVE INTUBATION: PLAN A-C

MODULE: AIRWAY

TARGET: NOVICE, BASIC LEVEL TRAINEES & ALL ANAESTHETISTS

BACKGROUND:

Management of the unexpectedly difficult airway 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).

RELEVANT AREAS OF THE ANAESTHETIC CURRICULUM

IG_BS_07 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: • Makes necessary explanations to the patient • Demonstrates satisfactory practice in preparing drugs for the induction of anaesthesia • Demonstrates proper technique in injecting drugs at induction of anaesthesia Manages the cardiovascular and respiratory changes associated with induction of general anaesthesia
IG_BS_10 AM_BS_05	In respect of airway management: • Demonstrates optimal patient position for airway management. • Manages airway with mask and oral/nasopharyngeal airways • Demonstrates hand ventilation with bag and mask • Able to insert and confirm placement of a Laryngeal Mask Airway • Demonstrates correct head positioning, direct laryngoscopy and successful nasal/oral intubation technique(s) and confirms correct tracheal placement. • Demonstrates appropriate use of bougies. • Demonstrates correct securing and protection of LMAs/tracheal tubes during movement, positioning and transfer.
IG_BS_12	Demonstrates failed intubation drill
AM_BS_06	Demonstrates correct use of advanced airway techniques including but not limited to Proseal, LMA supreme, iGel
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 cricothyroidtomy 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 to Plan C
- Recognise problem early, call for help early.

SCENE INFORMATION:

- Location: Anaesthetic Room

GA for elective laparoscopic cholecystectomy. Ventilation initially possible while waiting for muscle relaxation but becomes very difficult after intubation attempts. LMA ventilation fails. Maximal Plan C (2 handed, 2 person plus airway adjuncts) able to maintain sates. If help is provided to the participant, then this can be a more senior trainee or a consultant – allowing demonstration of handover communication, situational awareness, leadership and other non-technical skills for both participants.

EQUIPMENT & CONSUMABLES	PERSONS REQUIRED
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	Anaesthetic Novice Anaesthetic Assistant Anaesthetic Senior Trainee/Consultant (optional)

PARTICIPANT BRIEFING: (TO BE READ ALOUD TO PARTICIPANT)

You are the anaesthetist for a solo upper GI list. Please undertake the anaesthetic for Jennifer Roberts, 40 years old. She is due to undergo a laparoscopic cholecystectomy. It is her first ever operation. She gets recurrent cholecystitis and gallstones. She has an increased BMI of 36. Her only medications are occasional gaviscon for when she gets indigestion. She attributes this to her gallstones. She has had a previous rash after taking Penicillin. She is fully fasted.

Her airway assessment reveals a Mallampati score of 2, mouth opening greater than 3cm, and very slightly limited neck movements.

Her preoperative blood tests are all normal.

'VOICE OF MANIKIN' BRIEFING:

You are Jennifer Roberts. You prefer to be called Jenny. You are about to undergo a laparoscopic cholecystectomy (gallbladder removal using keyhole surgery). This is your first operation, and so you are quite nervous. You don't have any medical problems except for gallstones and frequent episodes of cholecystitis. You have had a rash following penicillin for a UTI previously.

'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 struggling significantly.

If the participant is relatively experienced or senior, then an additional level of challenge can be provided by acting as relatively inexperienced – not anticipating the next requests, not knowing where equipment is and passing equipment to anaesthetists inappropriately (e.g. bougie wrong way round, wrong size OP airway)

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CONDUCT OF SCENARIO

INITIAL SETTINGS

A: Patient and Self-maintained. Fixed neck.
B: RR 16, SpO2 96% RA → 99% w/preoxygenation
C: HR 90 (Sinus), BP 130/75
D: Eyes open and alert. Calm but anxious.
E: Hospital gown, TEDs.

EXPECTED ACTIONS

- Ensure that anaesthetic machine is checked.
- Ensure that the induction drugs and emergency drugs are drawn up and correctly labelled.
- Review anaesthetic plan with assistant (IV induction, size of ETT)
- Allow assistant to perform check-in and WHO.
- Review history and examination if required.
- Attach monitoring
- Check IV access
- Optimise position of patient prior to induction.
- Pre-oxygenate
- Give appropriate induction drugs, including muscle relaxant.

INDUCTION

A: **Airway settings normal initially during ventilation while awaiting muscle relaxation**
B: **RR 0 over 1 min. SpO2 98%**
C: **HR 100 (Sinus), BP 90/50**
D: Eyes closed (AVP**U**).

EXPECTED ACTIONS

- Ventilation initially possible while awaiting muscle relaxation.

INTUBATION ATTEMPTS

A: **Fixed neck, tongue swelling, laryngospasm.**
B: RR 0. **EtCO2 initially 0. SpO2 80% after 5 minutes (sigmoid trend). Maximal airway resistance.**
C: See changes below.
D: Eyes closed (AVP**U**).

EXPECTED ACTIONS

- Call for help
- Plan A:
  - Reposition, alternate laryngoscopes, bougie, external laryngeal manipulation.
- Plan B:
  - LMA/ILMA insertion and secondary intubation attempt.
- Plan C:
  - Face mask ventilation, oral +/- NP airway, 2-handed, 2-person ventilation.

LOW DIFFICULTY

- With 2 person technique, and airway adjuncts, ventilation possible and resistance normal.
- SpO2 improves to 90-92%
- Senior help arrives quickly.

NORMAL DIFFICULTY

- SpO2 to 60% over further 3 mins
- Bradycardia at SpO2 60% (8 mins)
- With maximal Plan C efforts, SpO2 maintains at 85%. Airway resistance level 1.

HIGH DIFFICULTY

- SpO2 to 60% over further 2 mins.
- Bradycardia at SpO2 60% (7-8mins)
- Plan C Efforts, SpO2 maintains at 85%. Airway resistance level 2.
- Relatively unskilled assistant.

RESOLUTION

When patient is safe to transfer to theatre

ANAESTHETIC RECORD SHEET

PATIENT DETAILS / ADDRESSOGRAPH
Hospital No.

SURNAME: Jennifer Roberts
(Block Letters)
FORENAMES: 40 years old

Address:
Ward/Hosp.

DOB: Sex: M / F

NHS

Procedure(s) proposed:

Laparoscopic Cholecystectomy

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:

Recurrent cholecystitis and gallstones
Occasional heartburn
Increased BMI (36)

VTE Risk: ☐ High ☐ Low

O/E

Unremarkable

Airway Assessment

Mouth Opening:
MP Score: 1 2 3 4
Jaw: MP 2, Mouth opening
Neck: 3cm, slightly limited neck

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: 2200 yesterday
Clear Fluids:
Pregnancy : Neg
Lactation:

Relevant Medication:

Occasional Gaviscon

ALLERGIES

Penicillin

Investigations

☐ Haematology FBC Hb 11.8 Sickle:	☐ Biochemistry U & E NAD Blood Sugar:	☐ Coag. NAD ☐ Gp. & Save ☐ X - Match	☐ ECG NAD ☐ X - Ray	Other: Abdo USS - Gallstones

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

Notes / Discussion / Technique proposed:

Consented for GA with intubation.

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

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

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

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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 the failed intubation protocols – Plan A to Plan C
- Recognise problem early, call for help early.

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 • Failed intubation

FURTHER RESOURCES

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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?