

TRACHEOSTOMY EMERGENCIES

MODULE: AIRWAY

TARGET: ALL ANAESTHETISTS, INTENSIVISTS, ED & ACUTE PHYSICIANS, FOUNDATION DOCTORS

BACKGROUND:

Around 16% of ICU patients may have a tracheostomy. Life-threatening complications occur during their insertion and use, including pneumothorax, bleeding, blockage and extra-tracheal positioning after becoming dislodged. There are no nationally agreed algorithms for the management of tracheostomy emergencies, but anaesthetists are expected to manage tracheostomy emergencies according to a logical, structured approach.

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_10 AM_BS_05	In respect of airway management: <ul style="list-style-type: none"> • 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.
AM_BS_10	Demonstrates management of “Can’t intubate, Can’t Ventilate” scenario. [Cross Reference; Critical incidents].
AM_BS_11	Demonstrates correct use of oropharyngeal, laryngeal and tracheal suctioning
CI_BK_01	Cardiac and/or Respiratory Arrest
CI_BK_02	Unexpected fall in SpO2 with or without cyanosis
CI_BK_03	Unexpected increase in peak airway pressure
CI_BK_04	Progressive fall in minute volume during spontaneous respiration or IPPV
CI_BK_05	Fall in end tidal CO2
CI_BK_18	Difficulty with IPPV, sudden or progressive loss of minute volume
CI_BK_28	Accidental decannulation of tracheostomy or tracheal tube
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
5.2	Performs emergency airway management
5.4	Performs endotracheal suction
CI_IS_01	Demonstrates leadership in resuscitation room/simulation when practicing response protocols with other healthcare professionals
CI_IS_02	Demonstrates appropriate use of team resources when practicing response protocols with other healthcare professionals
5.3	Performs difficult and failed airway management according to local protocols
EN_HS_06 RC_HS_01	Demonstrates the ability to perform surgical airway techniques [S] [Cross Ref: Critical Incidents; Cardio-respiratory Arrest]
RC_HS_02	Demonstrates the ability to provide comprehensive clinical care throughout the resuscitation attempt and during further care if indicated
5.3	Performs difficult and failed airway management according to local protocols

INFORMATION FOR FACULTY

LEARNING OBJECTIVES:

- Understanding and applying a standardised approach to tracheostomy emergency management
- Recognise problem early, call for help early.

SCENE INFORMATION:

- Location: Intensive Care Unit

EQUIPMENT & CONSUMABLES

- Mannequin: attached to ventilator through “blocked trache” (inner tube blocked with blue tack), trachea passes through neck skin but into “subcutaneous space – not the trachea”
- ICU Ventilator/Anaesthetic Machine
- Airway Trolley
 - Laryngoscopes (2 Macintosh)
 - ET Tubes (Various sizes)
 - OP and NP Airways
 - ILMAs, LMAs (Various Sizes)
 - ‘Plan D’ Equipment:
 - Scalpel and #6ETT
 - Ravussin needle and Manujet
- Tracheostomy Box
- Water’s Circuit
- Self-Inflating bag-valve-mask

PERSONS REQUIRED

Intensive Care/Anaesthetic Trainee
ICU Nurse
Anaesthetic Senior Trainee/Consultant
Midwife (Optional)
ICU Nurse Senior (Optional)

PARTICIPANT BRIEFING: (TO BE READ ALOUD TO PARTICIPANT)

You are the on-call ICU doctor on a night shift. The nurse looking after one of your side room patients has called you urgently as the patient is de-saturating.

FACULTY BRIEFING:

The participant has been asked to see an ICU tracheostomised patient urgently as they are de-saturating and the ventilator high pressure limit is alarming. The actual tracheostomy problem is dependent on the experience level of the participant.

'VOICE OF MANIKIN' BRIEFING:

Nil. Unconscious.

OTHER IN-SCENARIO PERSONNEL BRIEFING:

ICU Nurse (Junior):

You are the ICU nurse looking after this patient in a side room during this night shift. You are relatively inexperienced, and have never looked after a tracheostomised patient before. Be as helpful as possible to the participant, but you are not able to suggest any management steps.

The patient is a 64 year old man, Christopher Morris, who has been on the ICU for 6 days. He was initially intubated for respiratory failure and sepsis caused by a community acquired pneumonia. He failed extubation yesterday. He is known to have mild to moderate COPD on inhalers only.

- He had a percutaneous tracheostomy inserted during the daytime earlier today.
- Following a roll (for nursing care), the high pressure alarm has been alarming and the patient has started to desaturate.

ICU Nurse (Senior) – Optionally introduce if participant struggling:

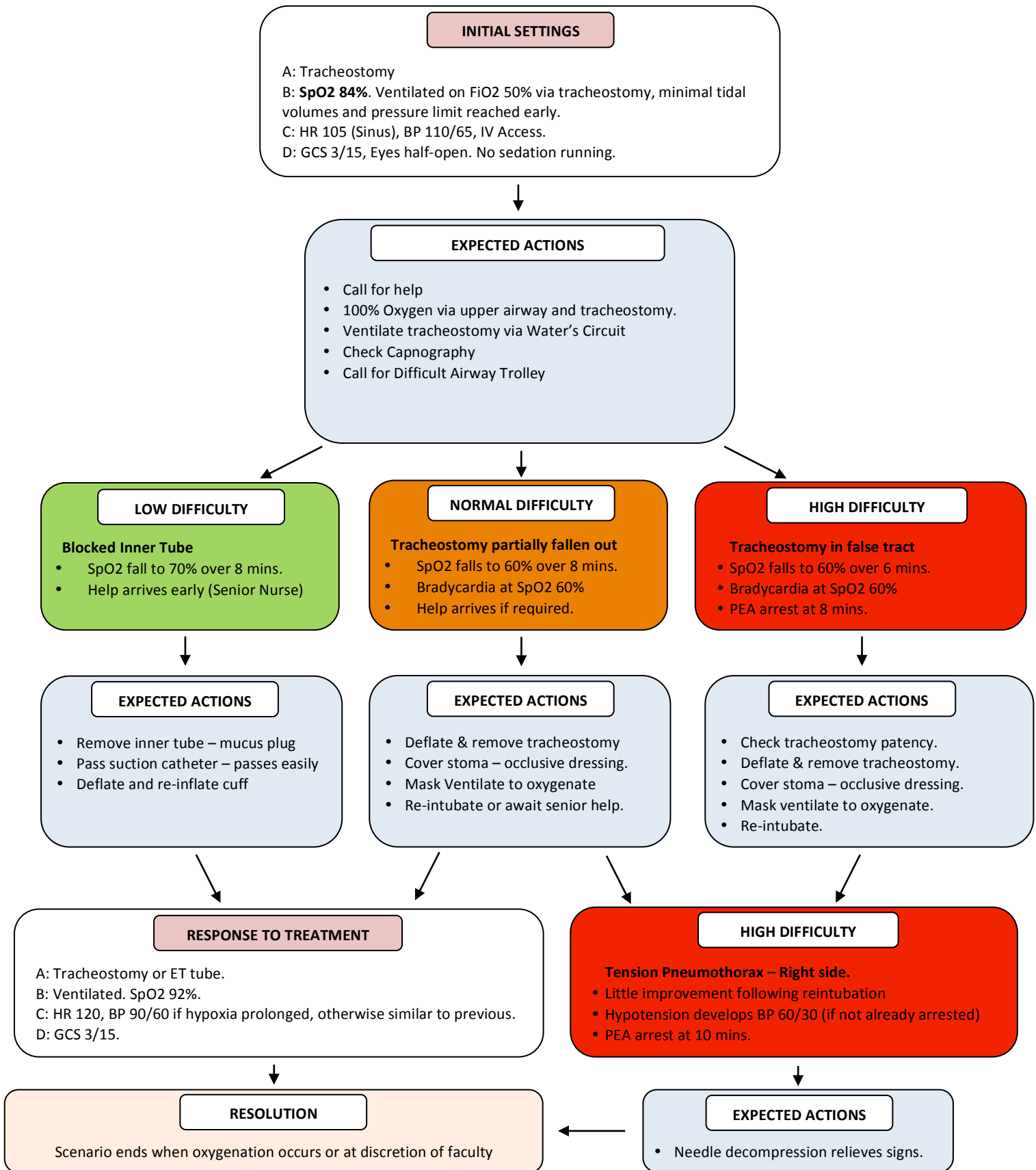
You are the nurse in charge during this night shift. You have just returned from your break to find that one of the patients in the side room is being assessed by the doctor due to desaturation. You are able to suggest the following actions if they have not already been performed:

- Administer 100 % oxygen to face and tracheostomy
- Inner tube removal – on the easier pathway this may partially alleviate the problem
- Suctioning – on the easier pathway, this may alleviate the problem fully after inner tube removal
- Gathering the equipment and drugs for reintubation

Voice of Telephone Help Briefing (ICU/Anaesthetic Consultant):

- At home at present, will take 20 minutes to arrive. Advise to administer 100% O₂, check capnography, change/remove inner tube, suction, deflate cuff and then remove tracheostomy and re-intubate if these fail.

CONDUCT OF SCENARIO



DEBRIEFING

POINTS FOR FURTHER DISCUSSION:

Technical:

- Hands-on demonstration of features of a tracheostomy tube (if required): Inner tube, cuff and pilot balloon etc.
- Management of tracheostomy emergencies – see algorithm (www.tracheostomy.org)
- Mnemonic O CISCO
 - **O**xxygen (via face and trache)
 - **C**apnography
 - **I**nner Tube out
 - **S**uction Catheter down tracheostomy
 - **C**uff down
 - **T**racheostomy **O**ut
- Potential consequences of dislodged trache: surgical emphysema, tension pneumothorax, pneumomediastinum etc.
- Local variations regarding equipment or protocols.

Non-technical:

- Situation awareness
- Communication during crises
- Task allocation and team management
- Leadership

DEBRIEFING RESOURCES

1. National Tracheostomy Safety Project Numerous resources (including videos) for managing tracheostomy emergencies, including algorithms for tracheostomy emergencies (with and without intact upper airways). www.tracheostomy.org.uk
2. National Tracheostomy Safety Project e-learning for healthcare module
<http://www.e-lfh.org.uk/projects/tracheostomysafety>
3. NAP4: Major complications of airway management in the UK Has specific chapters on ICU airway emergencies and tracheostomy emergencies. NAP4 includes an algorithm for managing tracheostomy emergencies.
<http://www.rcoa.ac.uk/index.asp?PageID=1089>
4. Difficult Airway Society Guidelines:
<http://www.das.uk.com/guidelines/ddl.html>
<http://www.das.uk.com/guidelines/downloads.html> Free iDAS app available from iTunes

INFORMATION FOR PARTICIPANTS

KEY POINTS:

- Applying a standardised approach to tracheostomy emergency management.
- Recognise problem early, call for help early.

RELEVANCE TO 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_10 AM_BS_05	In respect of airway management: <ul style="list-style-type: none"> • 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.
AM_BS_10	Demonstrates management of “Can’t intubate, Can’t Ventilate” scenario. [Cross Reference; Critical incidents].
AM_BS_11	Demonstrates correct use of oropharyngeal, laryngeal and tracheal suctioning
CI_BK_01	Cardiac and/or Respiratory Arrest
CI_BK_02	Unexpected fall in SpO2 with or without cyanosis
CI_BK_03	Unexpected increase in peak airway pressure
CI_BK_04	Progressive fall in minute volume during spontaneous respiration or IPPV
CI_BK_05	Fall in end tidal CO2
CI_BK_18	Difficulty with IPPV, sudden or progressive loss of minute volume
CI_BK_28	Accidental decannulation of tracheostomy or tracheal tube
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
5.2	Performs emergency airway management
5.4	Performs endotracheal suction
CI_IS_01	Demonstrates leadership in resuscitation room/simulation when practicing response protocols with other healthcare professionals
CI_IS_02	Demonstrates appropriate use of team resources when practicing response protocols with other healthcare professionals
5.3	Performs difficult and failed airway management according to local protocols
EN_HS_06 RC_HS_01	Demonstrates the ability to perform surgical airway techniques [S] [Cross Ref: Critical Incidents; Cardio-respiratory Arrest]
RC_HS_02	Demonstrates the ability to provide comprehensive clinical care throughout the resuscitation attempt and during further care if indicated
5.3	Performs difficult and failed airway management according to local protocols

WORKPLACE-BASED ASSESSMENTS

Basic Level WBPA's	
CIB_D01	<p>Demonstrates the management of the following specific conditions in simulation</p> <ul style="list-style-type: none">• Difficulty with IPPV and sudden or progressive loss of minute volume <p>Demonstrates the emergency management of the following critical incidents in simulation:</p> <ul style="list-style-type: none">• Cardiac and/or respiratory arrest

FURTHER RESOURCES

1. National Tracheostomy Safety Project Numerous resources (including videos) for managing tracheostomy emergencies, including algorithms for tracheostomy emergencies (with and without intact upper airways).
www.tracheostomy.org.uk
2. National Tracheostomy Safety Project e-learning for healthcare module
<http://www.e-lfh.org.uk/projects/tracheostomysafety>
3. NAP4: Major complications of airway management in the UK Has specific chapters on ICU airway emergencies and tracheostomy emergencies. NAP4 includes an algorithm for managing tracheostomy emergencies.
<http://www.rcoa.ac.uk/index.asp?PageID=1089>
4. Difficult Airway Society Guidelines:
<http://www.das.uk.com/guidelines/ddl.html>
<http://www.das.uk.com/guidelines/downloads.html> Free iDAS app available from iTunes

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?

PARTICIPANT FEEDBACK

Date of training session:.....

Profession and grade:.....

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

Primary/Initial Participant	<input type="checkbox"/>
Secondary Participant (e.g. 'Call for Help' responder)	<input type="checkbox"/>
Other health care professional (e.g. nurse/ODP)	<input type="checkbox"/>
Other role (please specify):	<input type="checkbox"/>
Observer	<input type="checkbox"/>

	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?