



BASIC AIRWAY RESUSCITATION STRATEGY



instructors handbook

THE GOAL OF THIS WORKSHOP IS TO IMPROVE THE INITIAL MANAGEMENT OF A PATIENT WITH A FAILING AIRWAY.

The workshop is based around the simple BARS algorithm. This algorithm provides a framework for resuscitation similar to the algorithm for advanced cardiac life support. The steps in the algorithm provide an escalating response suitable for nurses and medical staff that are involved in the management of patients with potentially compromised airways.

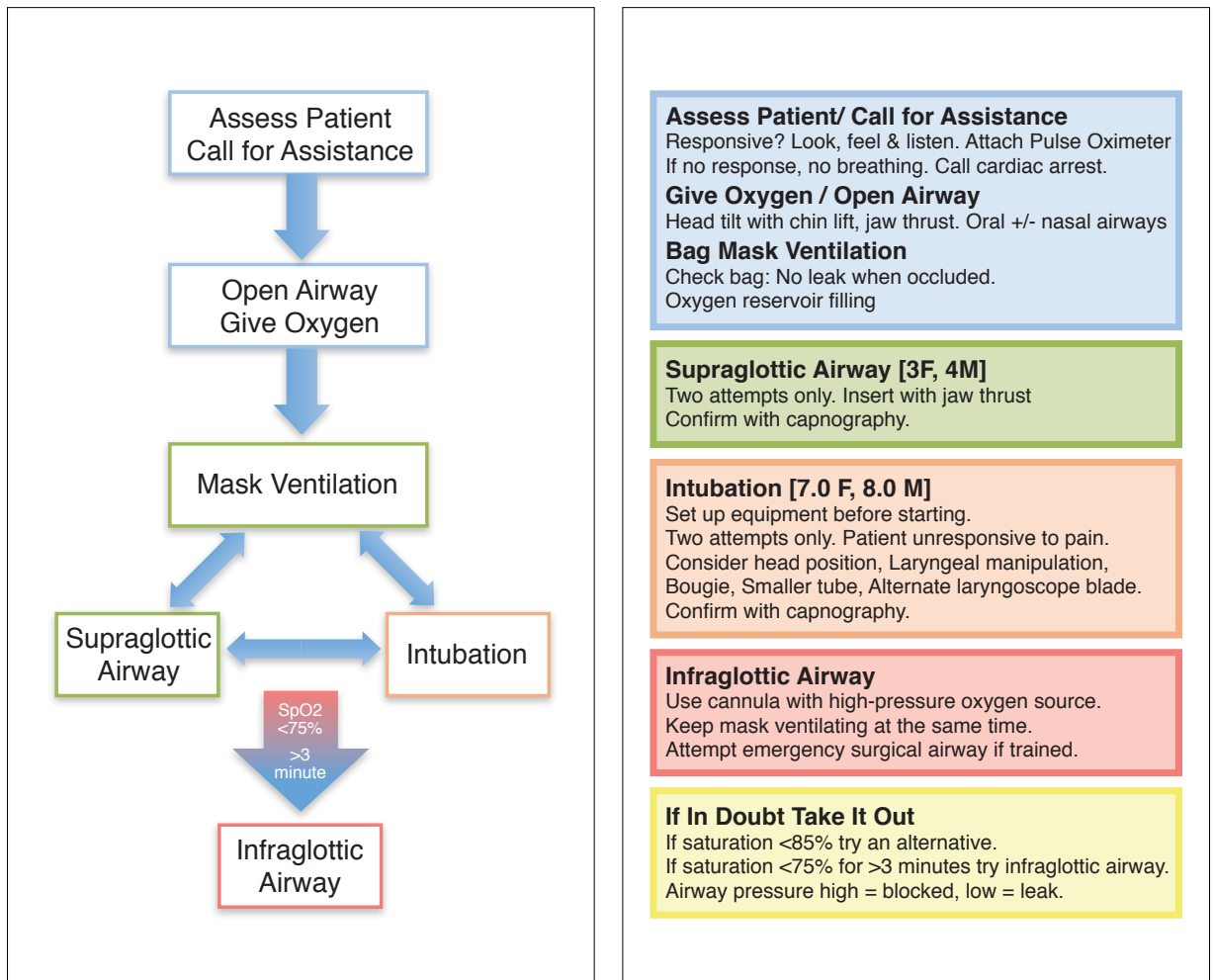
A didactic approach is taken to teaching in a small group, hands-on format. The ideal group of three to five students work with an instructor around an airway management trainer or manikin. After an introductory slide show each skill is practiced on the manikin after watching a video of that skill. Each student has the opportunity to practice every skill. After the skills practice a series of four scenarios are used to consolidate the learning and allow students to demonstrate their competence.

For further information on this workshop or extra copies of the teaching materials contact:

Dr. Richard Morris

Email: richard.morris@sesiahs.health.nsw.gov.au

BASIC AIRWAY RESUSCITATION STRATEGY ALGORITHM



LEARNING OBJECTIVES:

- To assess the needs of a patient with a failing airway.
- To understand the series of treatment options to effectively manage the airway.
- To develop the skills to implement these options.

COURSE PROGRAM

0 – 5 minutes	Introduction and explanation of workshop
5 – 15	How to use the strategy presentation
15 – 30	Clearing the airway and mask ventilation skill station
30 – 40	LMA skills station
40 – 50	Endotracheal intubation skills station
50 – 60	Transtracheal cannula oxygenation skills station
60 – 90	Scenarios

EQUIPMENT LIST

- ☐ Airway manikin
- ☐ Cricothyroidotomy trainer
- ☐ Simulated pulse oximeter or monitor
- ☐ Laptop with and video projector to show slides and videos

Airway management equipment

- ☐ Hudson mask
- ☐ Nasal prongs
- ☐ Source of oxygen and flow meter
- ☐ Stethoscope
- ☐ Mask and self-inflating bag, with oxygen tubing
- ☐ Size 2, 3, 4 Geudel's airways
- ☐ 6.0, 6.5, 7.0 mm nasopharyngeal airways
- ☐ Size 3 and 4 laryngeal mask airways [LMA]
- ☐ 20 ml syringe to inflate LMA cuff
- ☐ 6.0 and 7.5 mm endotracheal tubes [ETT]
- ☐ Stylet and intubating bougie
- ☐ 10 ml syringe to inflate ETT cuff
- ☐ Tie or tape to secure tube
- ☐ Laryngoscope with Magill size 3 blade
- ☐ Large bore cannula [12 or 14 gauge]
- ☐ IV giving sets and oxygen tubing
- ☐ High pressure oxygen delivery system such as Enk flow modulator or Manujet

BARS EVALUATION FORM

Date:

Your Role:

Please circle a number indicating your answer to the following questions:					
	POOR				GOOD
The Venue	1	2	3	4	5
Theory section	1	2	3	4	5
Practical section	1	2	3	4	5
Style of presentation	1	2	3	4	5

WHAT DID WE DO WELL?

.....

.....

.....

.....

.....

WHAT COULD WE IMPROVE ON?

.....

.....

.....

.....

.....

Thanks for your comments. If you would like to elaborate more write on a spare sheet of paper or talk to the presenter.

SCENARIOS FOR BARS WORKSHOPS

Four scenarios have been designed to run over the last 30 minutes of the workshop. The overall goals are to:

- Demonstrate understanding of the algorithm
- Practice the technical skills
- Reinforce the lessons of the workshop
- Assess the learning of the participants

Each scenario can be run on the same simple airway manikin or on a more advanced simulator as available. When using the simple manikin I find adding a pulse oximeter simulator [like the SimCentral one] or a monitor screen [like the SimMan one] enhances realism and increases the emotional pressure on the participants to perform well.

Scenarios can be focussed on formative assessment with active coaching of the participant throughout or can be run in exam mode with a stand and watch method followed by assessment and feedback to the participant.

A single assessment sheet is included that applies to all scenarios. For each individual, parts not assessed would be marked N/A [Not Assessed].

SCENARIO 1

Learning Objectives:

Assess a patient that is unconscious with an obstructed airway
Demonstrate ability to open the airway and administer oxygen
Recognise the response to treatment

Initial setup

Manikin is supine and breathing room air
Instructor is standing beside manikin but not making any attempts at treating patient
The instructor describes signs of obstructed airway and noisy breathing
SaO₂ 79% heart rate 105

Expected treatments

Inspection inside the mouth and suctioning
Head tilt/chin lift and jaw thrust
Application of supplemental oxygen with a facemask

Progress

When airway manoeuvres used breathing pattern and sounds improve
SaO₂ rises to 85%
When supplemental oxygen applied SaO₂ rises to 94%

SCENARIO 2

Learning Objectives:

- Assess a patient that is making minimal respiratory efforts
- Use a bag valve mask to assist ventilation
- Use oropharyngeal and nasopharyngeal airways
- Use of supraglottic airway

Initial setup

- Manikin is supine and has face mask oxygen in place
- Bag valve mask available but not connected to oxygen
- Instructor is applying head tilt/chin lift and jaw thrust
- They describe having used suction to clear secretions
- Respiratory rate of four with slight inspiratory effort described by the instructor
- SaO₂ 77% heart rate 65

Expected treatments

- Use of bag valve mask to support breathing with supplemental oxygen
- Oropharyngeal and nasopharyngeal airways inserted appropriately
- Supraglottic airway inserted safely

Progress

- When bag valve mask used to support breathing SaO₂ rises to 85%
- Still some sounds of airway obstruction and high pressures to mask ventilate
- When oropharyngeal or nasopharyngeal airway inserted SaO₂ rises to 89%
- Instructor describes ongoing leak from face mask
- When supraglottic airway inserted SaO₂ rises to 94%

SCENARIO 3

Learning Objectives:

- Assess the patient and situation on arrival
- Assist a colleague who has been unable to intubate
- Use a range of manoeuvres to aid a second attempt at intubation
- Demonstrate ability to try alternative plans if unable to intubate

Initial setup

Manikin is supine and instructor is applying bag valve mask ventilation using a oropharyngeal airway but without supplemental oxygen connected
They describe not being confident in intubating but they have had a single unsuccessful attempt at intubation.
They have not tried a supraglottic airway.
There is no spontaneous ventilation. Patient is not responding to pain
SaO₂ 77% heart rate 95

Expected treatments

- Use of bag valve mask to support breathing while assessment made
- Oxygen connected to bag valve mask
- Preparation for a second attempt at intubation
- Intubation with attention to:
 - Head position
 - Laryngeal manipulation
 - Tube size
- Use of a bougie
- Confirmation of correct placement of tube
- If unsuccessful then use of supraglottic airway

Progress

- When bag valve mask used to support breathing SaO₂ rises to 85%
- Still some sounds of airway obstruction and high pressures to mask ventilate
- When oropharyngeal or nasopharyngeal airway inserted SaO₂ rises to 89%
- Instructor describes ongoing leak from facemask
- When supraglottic airway inserted SaO₂ remains a 89%
- During intubation SaO₂ falls to 85%
- After tube is successfully placed SaO₂ rises to 96%
- If intubation unsuccessful and bag valve mask ventilation used SaO₂ rises to 90%

SCENARIO 4

Learning Objectives:

- Assess the patient and situation on arrival
- Recognise protracted hypoxia
- Use transtracheal cannula oxygenation
- Explain further care of patient

Initial setup

Manikin is supine and instructor is applying bag valve mask ventilation using a oropharyngeal airway with supplemental oxygen connected
They describe having had two attempts at intubation but not visualising past the tip of epiglottis. They have also attempted to place a supraglottic airway twice without success.
In spite of mask ventilation with oxygen the SaO₂ has been less than 75% for five minutes
There is no spontaneous ventilation. Patient is not responding to pain
SaO₂ 72% heart rate 95.

Expected treatments

- Use of bag valve mask oxygen to support breathing while assessment made
- Insertion of transtracheal cannula
- Confirmation of correct placement in trachea with syringe
- Connection to circuit and jetting
- Ongoing bag valve mask ventilation with cannula oxygenation
- Planning for further care

Progress

Instructor describes ongoing leak from facemask
When tracheal cannula used, SaO₂ rises to 90% while mask ventilation is continued, however if bag valve mask discontinued SaO₂ is at 82%.

ASSESSMENT

Date:

Candidate:

Instructor:

	Below	Acceptable	Good	N/A
Physical examination				
Pulse oximetry used / called for				
Observes response to treatments				
Airway clearing manoeuvres				
Supplemental oxygen utilised				
Bag valve mask ventilation				
Insert oropharyngeal airway				
Insert nasopharyngeal airway				
Insert supraglottic airway				
Prepares for intubation				
Insert endotracheal tube				
Cannula oxygenation				
Methodical approach				
Calls for assistance				
Communicates effectively				
Uses available resources				
Plans for further care				

Comments:

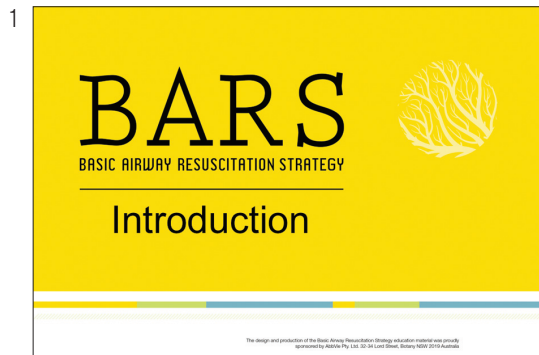
.....

.....

.....

INTRODUCTION TO PROGRAM

POWERPOINT SLIDES FOR INSTRUCTORS



2

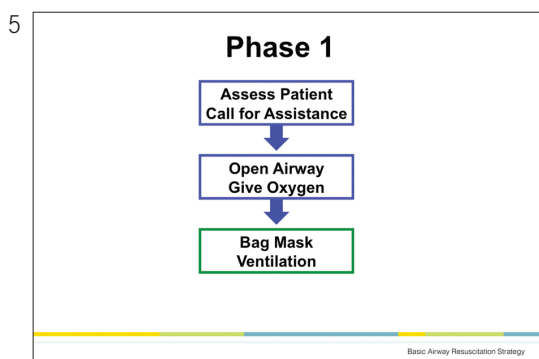
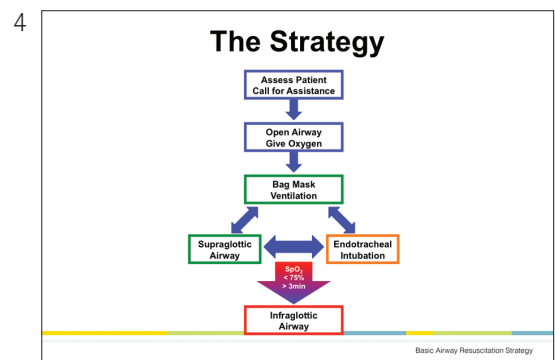
The Workshop

- 90 minutes of slides, skills and scenarios
 - Slides to understand the strategy
 - Skills stations to practice the manoeuvres
 - Scenarios to practice putting it all together
- Let's make it practical & interactive.

3

Basic Airway Resuscitation Strategy

- Our goal is to:
 - Open & protect the airway
 - Prevent hypoxia
 - Support ventilation
- A strategy is "a series of manoeuvres or plans for obtaining a specific goal or result".



6

Assess Patient Call for Assistance

- Is the patient breathing?
- Is there an open airway?
 - Look at the chest and abdomen
 - Listen for noisy breathing or stridor
 - Feel the chest and abdomen for movement
 - Attach pulse oximetry [Aim for SpO₂ > 85%]
- Call for assistance early
 - equipment, staff, specialists.

7

Open Airway Give Oxygen

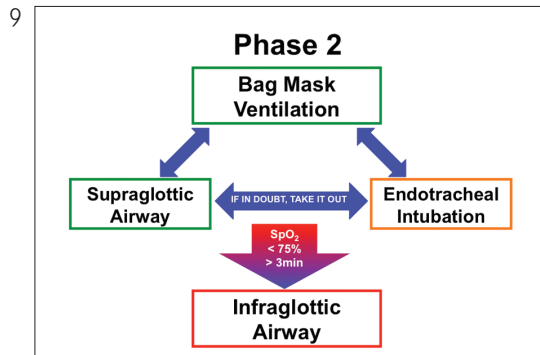
- Open the airway
 - Chin lift with head tilt
 - Jaw thrust
 - Oral +/- nasal airway
- Administer oxygen with:
 - face mask (Hudson) / bag mask + reservoir
- Hypoxia is more dangerous than hypercarbia.

8

Bag Mask Ventilation

- Easy to start
 - but ... hard to sustain [leaks & stomach inflation]
- TWO person technique
- Obtain a seal and open the airway
- Look, listen and feel to assess air movement
- Check SpO₂ - Aim > 85%
- This may be all that is required.

INTRODUCTION TO PROGRAM POWERPOINT SLIDES FOR INSTRUCTORS (CON'T)



10

What To Do Next?

- Continue bag mask ventilation
- Supraglottic Airway (LMA)
 - Easy to insert
- Or if skill and equipment available Endotracheal intubation
 - Difficult learning curve
- Cricoid cannula or surgical airway
 - High risk – a last resort.

Basic Airway Resuscitation Strategy

11

Supraglottic Airway

- Easy to insert
- No protection against aspiration
- High pressures may inflate the stomach
- Confirm CO₂ using capnograph
- If in Doubt – Take it Out.

Basic Airway Resuscitation Strategy

12

Endotracheal Intubation

- Difficult to learn and keep skills
- Only attempt if patient unresponsive to pain
- Only use if confirmation of CO₂ available (unrecognised oesophageal intubation)
- Two attempts only
- If in Doubt – Take it Out
- Patients do not die from lack of an endotracheal tube – they die from hypoxia.

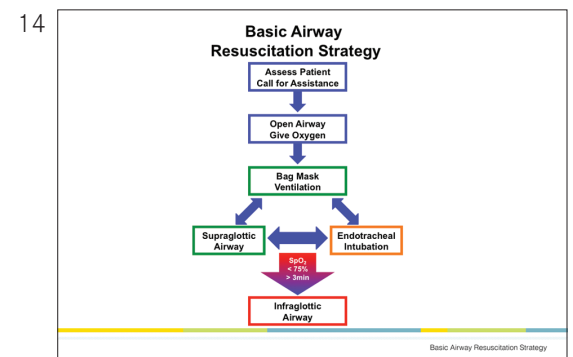
Basic Airway Resuscitation Strategy

13

Infraglottic Airway

- A dangerous technique
- Options include:
 - Cannula with high pressure oxygen circuit
 - Seldinger percutaneous airway
 - Surgical cricothyroidotomy
- Continue mask ventilation or LMA
- High complication rate but better than hypoxia.

Basic Airway Resuscitation Strategy



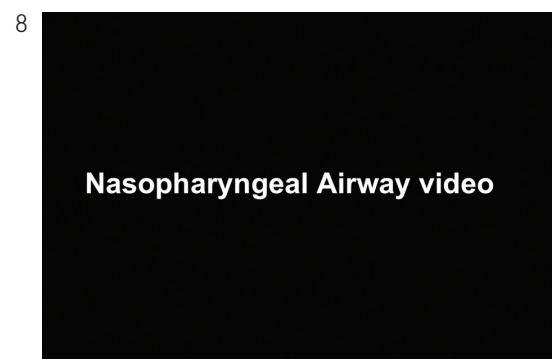
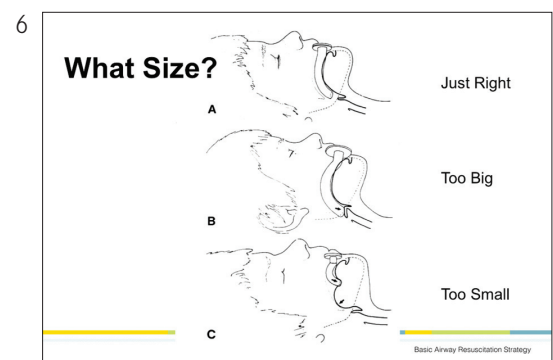
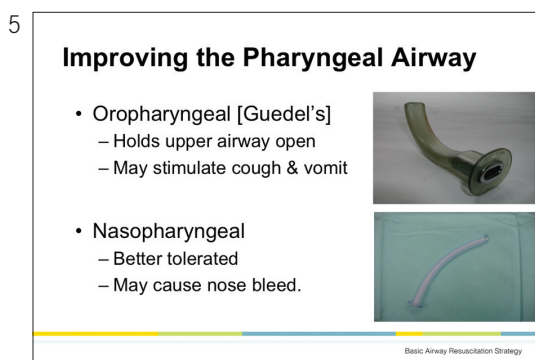
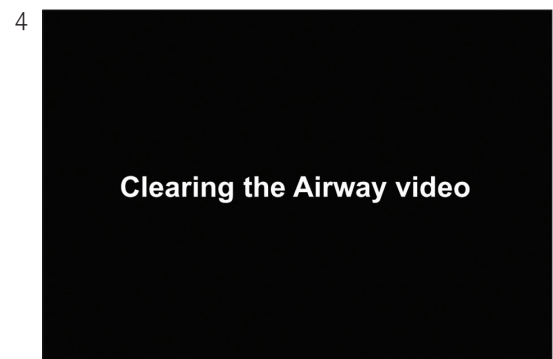
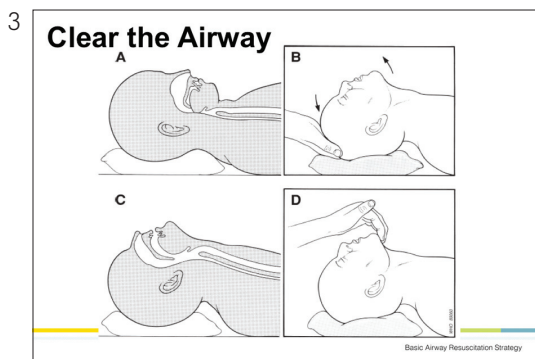
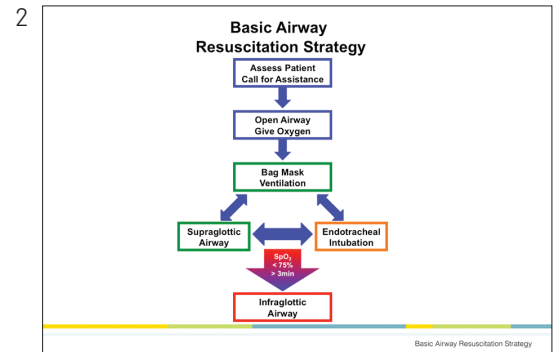
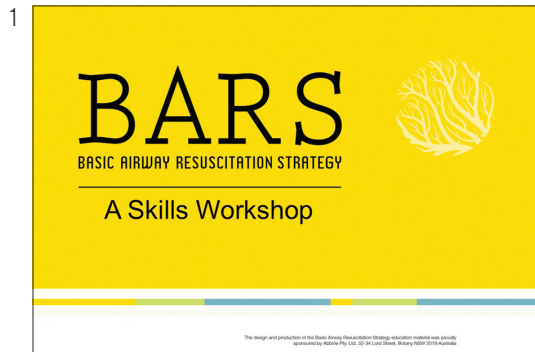
15

Next we can practice these skills and run through some scenarios.

Basic Airway Resuscitation Strategy

SKILLS STATIONS

POWERPOINT SLIDES FOR INSTRUCTORS



SKILLS STATIONS POWERPOINT SLIDES FOR INSTRUCTORS (CON'T)

9

Before Bag Mask Ventilation Check the Self-inflating Bag

- Occlude patient connection
- Squeeze the bag - [confirm no leak]
- Ensure oxygen is connected and reservoir inflating.

Basic Airway Resuscitation Strategy

10

Mask Ventilation

- Obtain a seal [this may need both hands]
- Second person squeezes the bag
- Monitor airway pressure
 - Low – Leaking High – Obstructed
- Watch chest movement
- Is the Sat > 85%?

Basic Airway Resuscitation Strategy

11

Mask Ventilation video

12

Laryngeal Mask Airway

Size	Weight (kg)
3	30-50
4	50-70
5	70 +



- 20 mls of air in cuff after inserting.
- If leaking or obstructing partly deflate cuff & manipulate position.



Basic Airway Resuscitation Strategy

13

LMA Insertion video

14

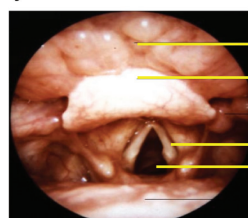
Endotracheal Intubation

- Needs GCS =3
- Minimum Equipment
 - Laryngoscope, endotracheal tube, syringe & tape
- Two attempts only
 - Optimise head position
 - Manipulate larynx
- 2nd Attempt add
 - Bougie
 - Smallest cuffed ETT
 - Different laryngoscope?



15

The Larynx



- Blade goes here
- Epiglottis
- Vocal cords
- Tube goes here

Basic Airway Resuscitation Strategy

16

Endotracheal Intubation video

SKILLS STATIONS POWERPOINT SLIDES FOR INSTRUCTORS (CON'T)

17

Intubating with a Bougie

- A bougie is a plastic tube or rod
5 mm diameter and 60 cm long
- Easier to put through the cords under vision
- A smaller ETT is slipped over it into trachea
- Corkscrewing the tube anticlockwise may help pass it through the vocal cords.

Basic Airway Resuscitation Strategy

18

Using a Bougie video

19

Confirming ETT Position

- Chest movement
- Misting in the tube
- Listen to chest & stomach
- Airway pressure [compliance]
- Capnography CO₂ after four breaths
- Is Sat <85%
- 'If in doubt – take it out.'

Basic Airway Resuscitation Strategy

20

Cannula Cricothyroidotomy

- Insert a large bore cannula into the trachea, angling it towards the feet
- Confirm position by aspirating
- A dangerous technique
[don't do it unless you really have to]
- Do it when the SpO₂ is <75% for >3 minutes.

Basic Airway Resuscitation Strategy

21

Cannula Oxygenation video

22

Homemade Jet Oxygenation Circuit

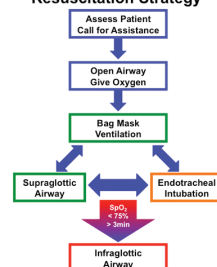
- Simple giving set with spike in end of green tubing
- Cut a vent in the drip chamber.



Basic Airway Resuscitation Strategy

23

Basic Airway Resuscitation Strategy



Basic Airway Resuscitation Strategy

LIST OF USB STICK CONTENTS

- PowerPoint file of Introduction talk
- PowerPoint file of Skills Stations talk
- PDF of the Instructor Handbook
- PDF of the Student Handbook
- PDF of BARS wallet card
- PDF of Evaluation Sheet
- PDF of Assessment Sheet
- PDF of A4 Algorithm
- Skills Station videos
 - Clearing the Airway
 - Use of the Self-inflating bag
 - Use of the Oropharyngeal Airway
 - Use of the Nasopharyngeal Airway
 - Inserting an LMA
 - Endotracheal Intubation
 - Use of the Bougie
 - Cricoid cannula oxygenation

NOTES

NOTES

NOTES

