

Home Ventilation and Respiratory Support Service

Tracheostomy Care at Home



Contents

About HVRSS	02
About Tracheostomy	03
Types of Tracheostomy Tubes	04
Tracheostomy Care	
Securing the tube	05
Stoma Care	06
Over-Granulation	07
Supplemental Oxygen (O ₂)	08
Secretion Management	
Keeping Secretion Loose.....	09
Mechanical Insufflation Exsufflation (MIE)	10
Tracheostomy Suction	11
Rescue Breathing (Ambu Bagging)	12
Emergency Management	
Tracheostomy Tube Dislodgement	13
Tracheostomy Tube Blockage	14
Ventilator Failure	15
Caring for Your Ventilator	15
Additional Resources	16
Emergency Card	17

About HVRSS

Established since 2009, the Home Ventilation & Respiratory Support Service (HVRSS) is a multi-disciplinary service that provides home care for Ventilator-Assisted Individuals (VAIs) aged 16 years old and above.

VAIs tend to have neurodegenerative diseases such as Amyotrophic Lateral Sclerosis (ALS) or spinal cord injuries (SCI) and require equipment such as life support or non-life support ventilators, cough assist machines and oxygen concentrators.

This booklet aims to provide useful information about caring for a individual with a tracheostomy and how to respond during emergency situations.



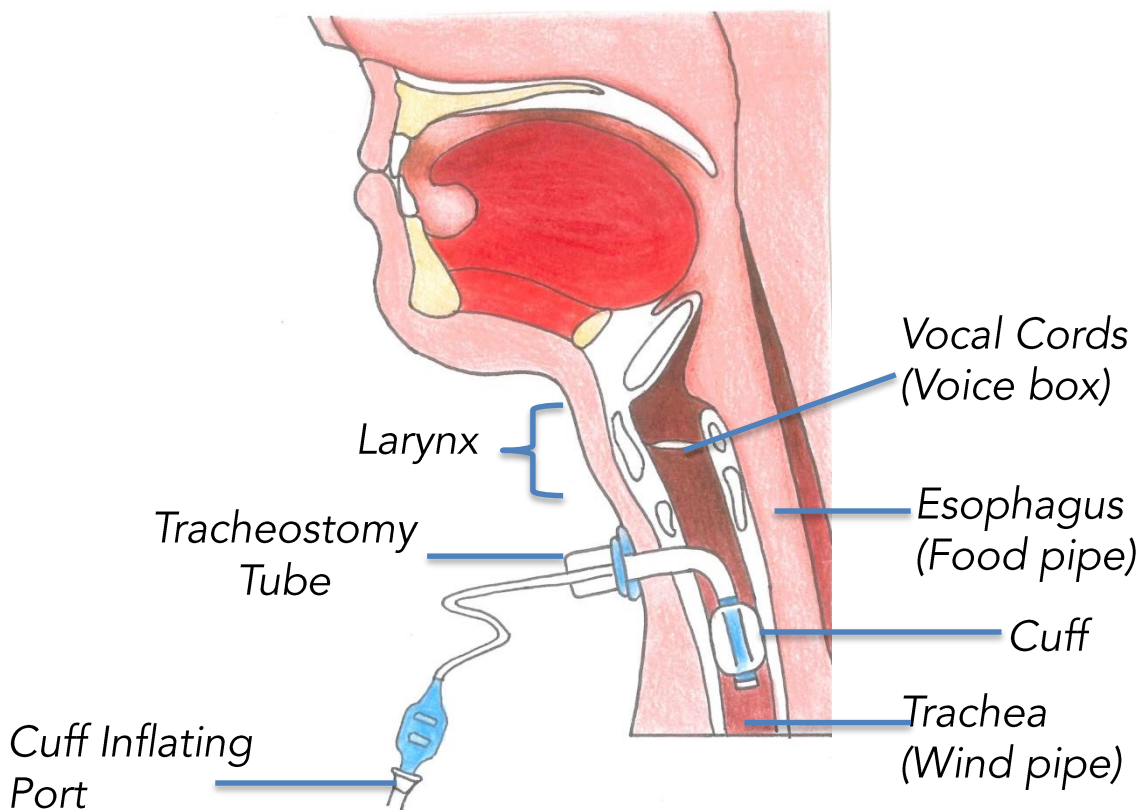
The TTSH HVRSS Team

About Tracheostomy

What is a Tracheostomy?

Tracheostomy is a surgically-created hole in the neck below the vocal cords. A tracheostomy tube is inserted through the opening to allow air passage into lungs when the patient cannot breathe on his/ her own.

When the tube is no longer needed, your doctor will remove it. The tracheostomy hole usually heals on its own.



Copyright © Image by: Ms Grace Yuan Zi Xin



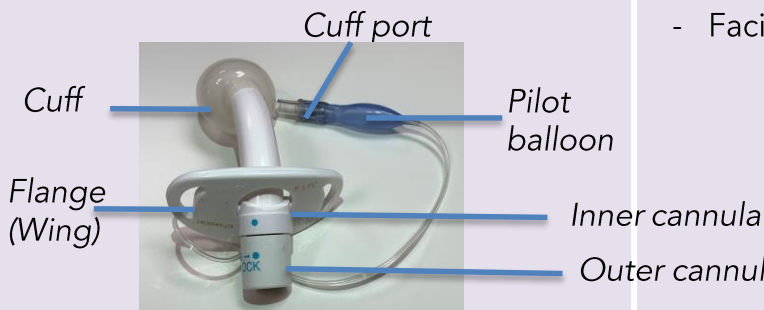
Reminder: Always wash your hands before handling the tracheostomy tube.

Types of Tracheostomy Tubes

There are different types of tracheostomy tubes available and your doctor will recommend the most suitable type for you.

Cuffed Tube

The cuff provides better ventilation seal



Cuffless Tube

- More comfortable, less painful during insertion
- Facilitates speaking



Fenestrated Tube

- With a hole along the tubing
- Facilitates speaking



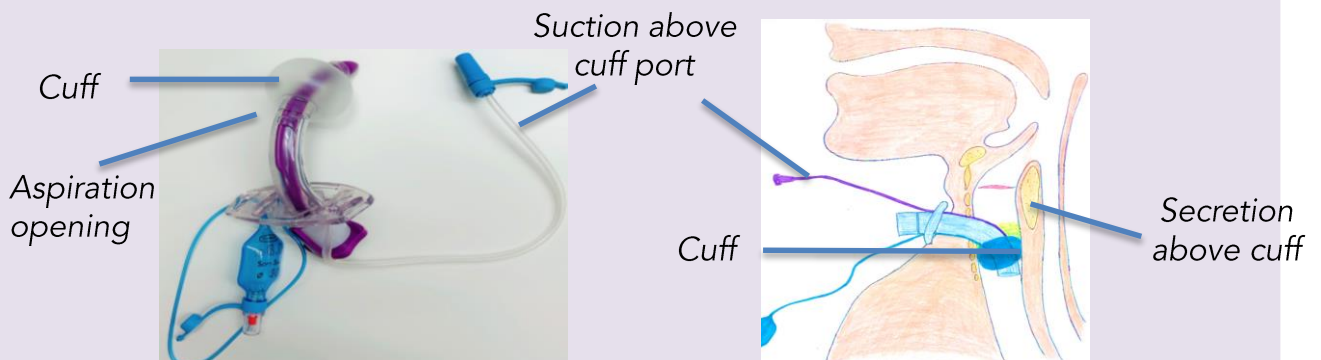
Fenestrated Inner Cannula

- To be used with a speaking valve
- DO NOT use for suction/ cough assist as it may injure the wind pipe



Suction Above Cuff Port

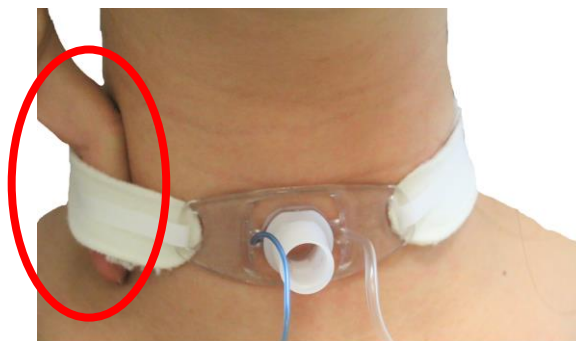
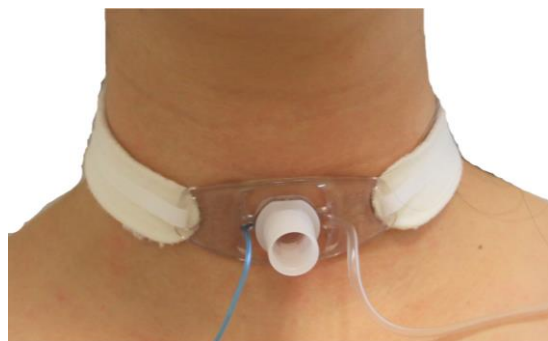
Facilitates the removal of secretion above cuff



Tracheostomy Care

1A. Securing of Tracheostomy Tube to Neck

When securing the tracheostomy tube, allow one finger spacing between the neck and trach strap. If the strap is too loose, it may cause a higher risk of bleeding, over-granulation and dislodgement.



1B. Connection to Ventilator Tubing (if Machine Assistance is Needed)

To ensure a secure connection, use 'Strong Hold*' or 'Velcro Tape'



Reminder: Loosen 'Strong Hold' during exercise, transfer and mobilisation to prevent tube from being pulled out!



A close up look of the Strong Hold

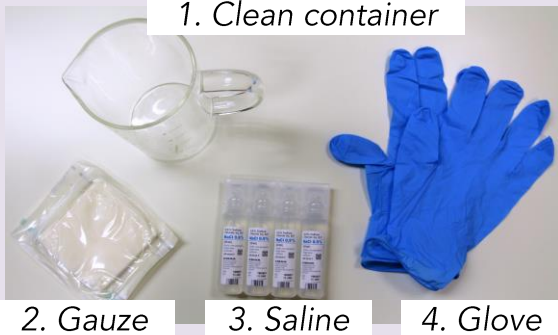
*A 'Strong Hold' is a device to secure the tracheostomy tube.

Tracheostomy Care

2. Stoma Care

Regular cleaning is necessary to prevent stoma infection and skin breakdown. Clean stoma **once a day** and **when it is dirty**. Always wash your hands before touching the tracheostomy area.

Step 1: Prepare items



Step 2: Remove the old dressing. Stabilise the tube during removal



Step 3: Clean stoma site and flange with clean gauze soaked with saline



Step 4: Apply clean gauze after drying



Reminder: Consult your doctor if you see the conditions below:

(A) Redness or Skin Irritation



(B) Infection



(C) Bleeding



Tracheostomy Care

3. Over-Granulation

- Over-granulation is lumpy pink tissue growing at the stoma. It is caused by excess growth of new tissue or vessels.
- It increases the risk of infection, pain and bleeding.
- To prevent it, steroid cream or hypertonic sodium chloride dressing (Mesalt) can be used.



Treatment

Option 1: Steroid cream
(with prescription only)



Apply a thin layer of cream on the granulation tissue one to two times a day



Option 2: Using a clean scissors, cut Mesalt dressing into strips of about 1cm width



Roll dressing around the tube

- Ensure dressing touches the granulation
- Change dressing daily

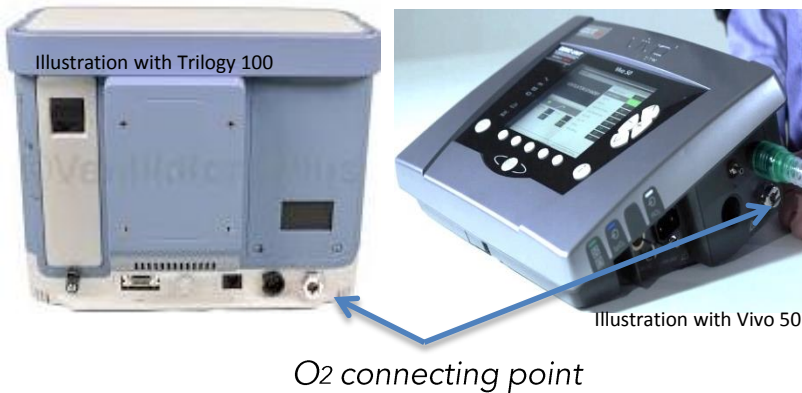


Supplemental Oxygen (O₂)

In situations of breathlessness or low SpO₂, Supplemental Oxygen (O₂) can be given by an oxygen concentrator or oxygen tank.

A. Giving Oxygen with a Ventilator

1. Connect O₂ directly to ventilator



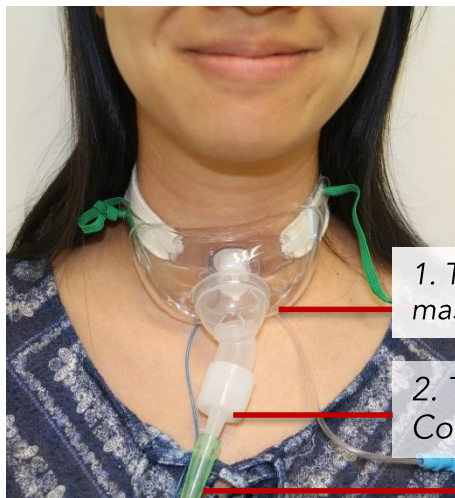
2. Use connector in circuit



B. Giving Oxygen Without a Ventilator

Oxygen can be supplied via: 1) using a trach mask or 2) Heat and Moisture Exchanger (HME). The Humidifier on O₂ concentrator can be used to make air moist for patients with trach mask.

1. Trach mask



2. (HME)



Humidifier on O₂ concentrator (to moisten air)



DO NOT use Humidifier on O₂ concentrator with Heat and Moisture Exchanger (HME) AND ventilator.

Secretion Management

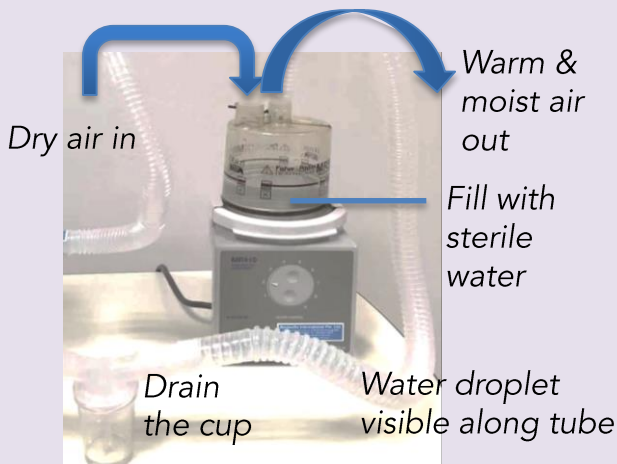
– Keeping Secretion Loose

- Accumulation of secretion can cause infection or blockage. Hence, it is important to ensure regular clearing of secretion.
- Keep secretion loose by giving sufficient moisture or medication as prescribed by the doctor.

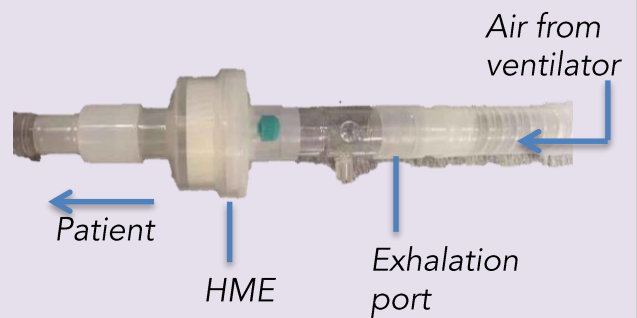


Secretion causing tube blockage

1. Heated Humidifier - Active

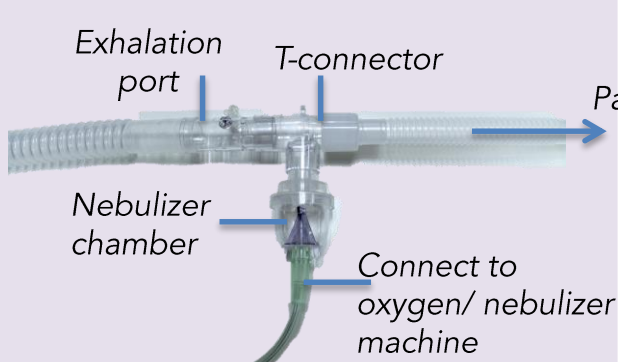


2. Heat and Moisture Exchanger (HME) - Passive



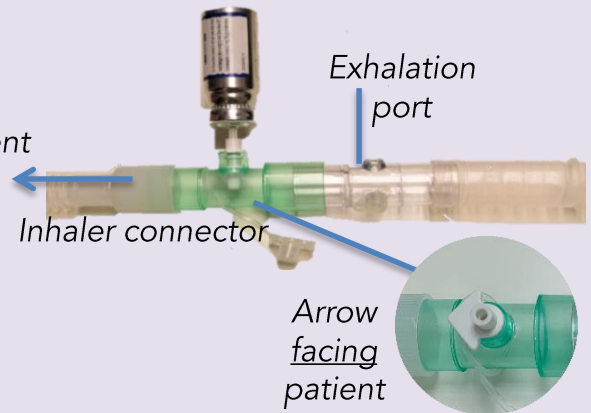
3. Nebulizer

- To give saline and some medications to treat airway diseases
- Turns liquid medication into fine mist



4. Inhaler puff

- To be given with an inhaler connector
- To give medication to ease breathing and treat inflammation



1. Use either Heated Humidifier or HME. Do not use them together.
2. For nebulizer and inhaler puff, HME **must be** removed to prevent medication from being trapped.

Secretion Management

– Removal of Secretion

Secretions can be removed by cough assist, suction or changing of inner cannula.

A. Mechanical Insufflation Exsufflation (MIE) - Cough Assist

1. Items required: MIE machine, corrugated tube with connector, clean inner cannulae, containers, tissue paper
2. Ensure heart rate, blood pressure and SpO₂ are stable before performing cough assist.
3. Monitor patient closely during cough assist. If blood pressure is low but secretions are excessive, perform cough assist with patient lying down.

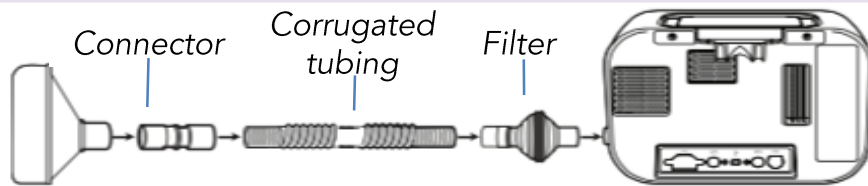
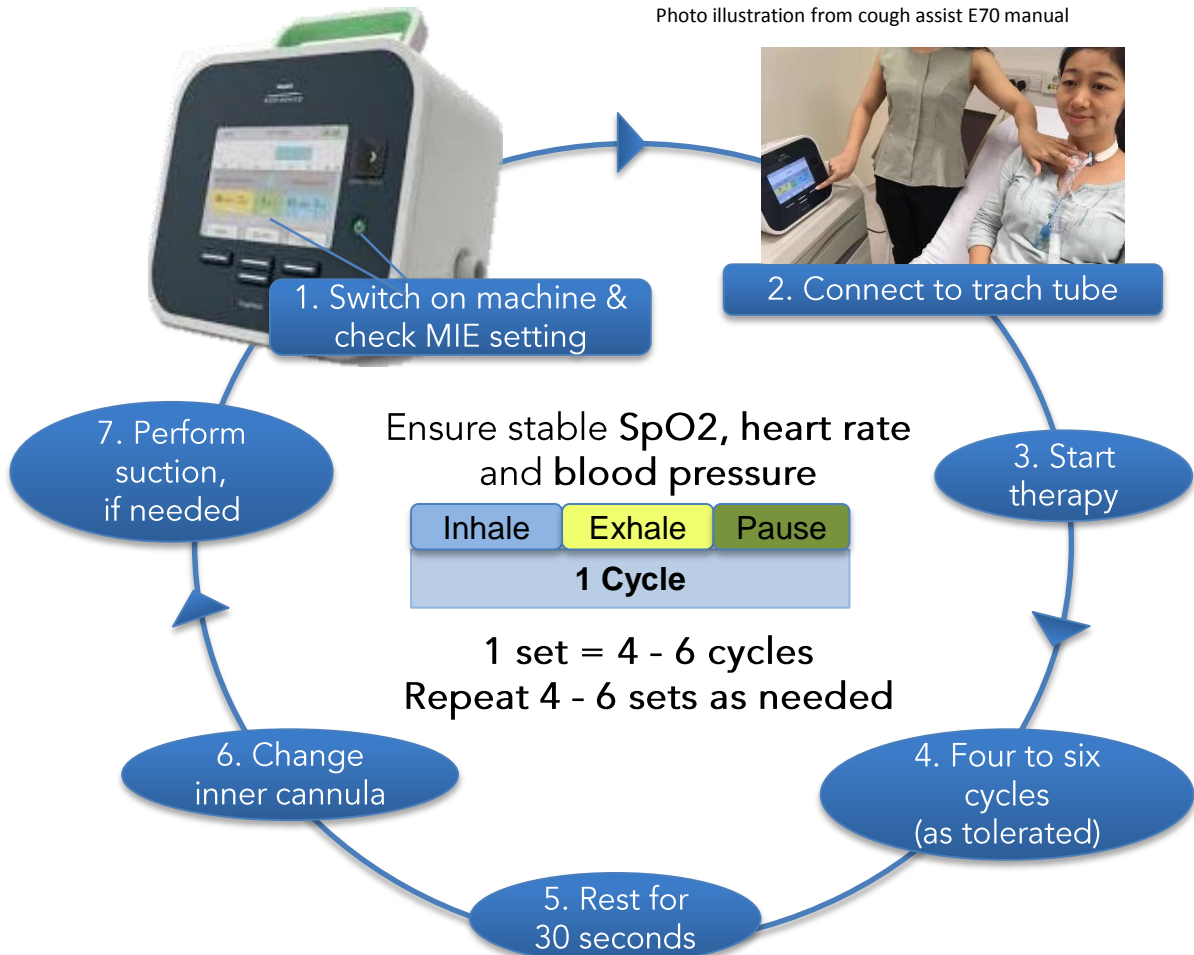


Photo illustration from cough assist E70 manual



Secretion Management

– Removal of Secretion

B. Tracheostomy Suction

Items to prepare for tracheostomy suction:



Step 1. Check SpO₂ and heart rate – ensure vital signs are stable



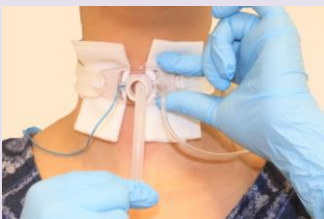
Step 2. Using sterile gloves, hold catheter with one hand. Avoid contact with non-sterile surfaces.



Step 3. Insert catheter until resistance is felt. Pull out 1 to 2 cm and apply suction. Turn catheter continuously while removing.



Step 4. With one hand stabilising the flange, remove inner cannula and replace with a clean one



Step 5. Clean inner cannula with a trachy brush/ straw brush under running water



Step 6. Rinse inner cannula with cool boiled water*. Air dry before storage



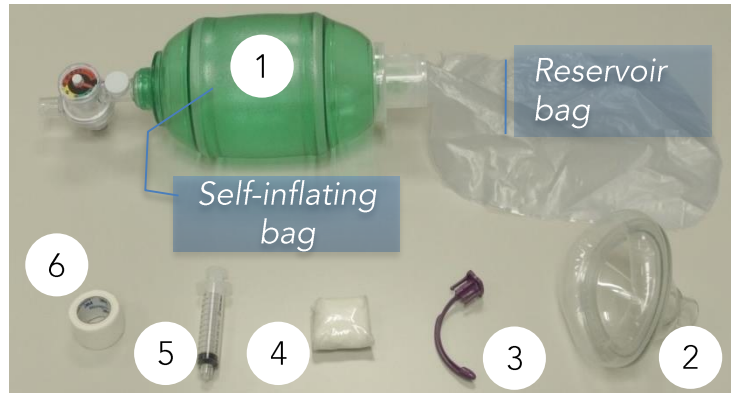
* In the hospital, sterile water is used instead of cool boiled water due to higher risk of cross infection.

Rescue breathing (Ambu Bagging)

Ambu Bag or Bag Valve Mask (BVM) can be used as a manual resuscitator if the patient is not breathing or breathing inadequately.

The following items should be packed together in a box and always kept near to the patient, in case of an emergency:

1. Ambu bag
2. Well inflated mask
3. Obturator
4. Gauze
5. Syringe
6. Tape



A. Rescue breathing with Tracheostomy Tube



1. Attach the Ambu bag to tube
2. Squeeze half the bag and count "Breathe in", release and count "Breathe out". Count "1, 2, 3" before repeating again.

3. Look out for:

- Rise and fall of the chest
- Opening of the 'eye'
- Monitor the SpO₂ levels (>95%), heart rate (60 – 120 rpm) and blood pressure



B. Rescue breathing with Face Mask 'C.E' Method

4. Using one hand, squeeze and release the Ambu bag. The self-inflating bag should be half filled.

Well inflated mask

3. Lift chin up and tilt head backward for better air entry



1. Thumb and index finger on mask forming a "C"

2. Other fingers holding the jaw bone forming an "E"

Tracheostomy Tube Dislodgement

Keep Calm! Remember **R.A.C.I.N.G**

- 1) **Reinsert** tracheostomy tube if trained
- Check for exhaled air after insertion
 - Remove tube if uncertain of correct placement



- 2) **Airway clearance** (oral/ stoma/ tube)
- Perform suction through tube after insertion
 - If tube is not inserted, remove visible secretions



- 3) **Cover stoma** if
- Reinsertion is not attempted or failed
 - Cover with gauze and tape all sides of it



- 4) **Inflate lung** using ambu bag with face mask
- No need to use ambu bag if patient is breathing on his/ her own



- 5) **Notify ambulance: 995**
- Inform emergency situation & address
 - Do not put down the phone until told to do so



- 6) Maintain **Good vital signs** & ventilation
- Monitor patient continuously



Reminder: If the patient is conscious, can breathe and maintain good SpO₂, you do not need to do anything except to monitor him/ her closely, give oxygen and call the ambulance. Only apply RACING if he/she needs further support.

Tracheostomy Tube Blockage

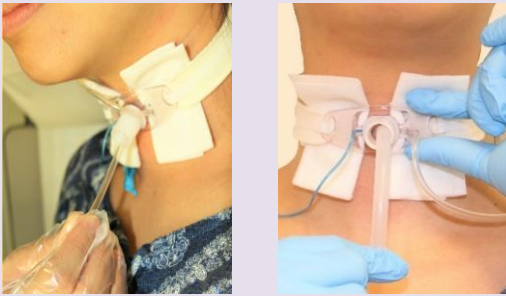
A tube blockage is suspected if the following occurs:

- 1) Patient experiences breathlessness, cold sweat, nasal flaring, $SpO_2 < 90\%$
- 2) Ventilator shows the following message: high pressure / low V_{te} / volume not delivered
- 3) Patient's face is turning blue (late sign)

Keep Calm! Remember **A.D.I.D.A.S**

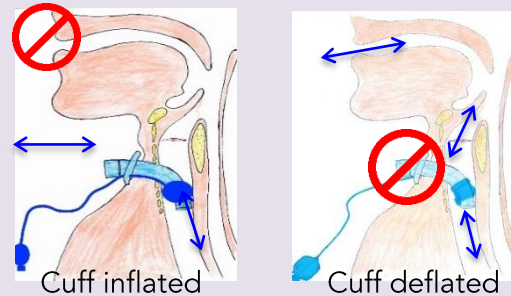
1) **A**irway clearance

- Perform suction and change inner cannula



2) **D**eflate cuff if unable to clear blockage

- (for cuffed tube)
- To allow airflow outside tube



3) **I**nflate lung using Ambu bag with face mask if unable to breathe



4) **D**ecannulate (remove tube) if air cannot enter. Cover stoma and continue using Ambu bag with face mask



5) **A**ctivate ambulance: **995**

- Inform emergency situation & address
- Do not put down the phone until told to do so



6) **S** $_{pO_2}$ and Heart Rate

- Maintain good ventilation and vital signs
- Monitor patient continuously



Reminder: If the patient is conscious, can breathe and maintain good SpO_2 , you do not need to do anything except to monitor him/ her closely, give oxygen and call the ambulance. Only apply ADIDAS if he/she needs further support.

Ventilator Failure

Keep Calm! Remember **R.R.C.A**



Step 1: Rescue breathing via tracheostomy tube
(Refer to page 12)



Step 2: Restart ventilator
If ventilator is able to function normally, connect patient to ventilator



Step 3: Contact vendor for replacement of ventilator



Step 4: Activate Ambulance if patient is unstable or cannot contact vendor



Reminder: If the patient is conscious, can breathe and maintain good SpO₂, you do not need to do anything except to monitor him/ her closely, give oxygen and get a replacement ventilator from the vendor.

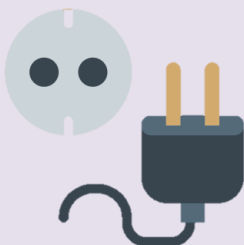
Caring for Your Ventilator:



Pollen filter:
Change/ clean if clogged with dust



Bacteria filter:
Change weekly or when the colour changes



Battery:
Keep ventilator charged at all times



Servicing:
Regular servicing is recommended and when an error is suspected

Additional Resources



Facebook

www.facebook.com/ttsh.hvrss



Check out our updated events, educational booklet and video resources

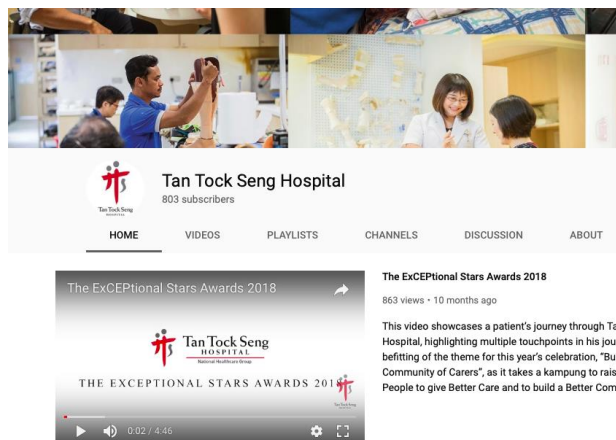


TTSH YouTube

<https://www.youtube.com/user/TanTockSengHospital>



Check out our education videos



Home Ventilation & Respiratory Support Service (HVRSS)

Operating Hours:

Mondays to Fridays: 8.30am to 5.00pm

For more information, contact us at

Email : hvrss@ttsh.com.sg

Our team: Dr Chan Yeow, Dr Adrian Tan Kok Peng, Dr Tan Geak Poh, Dr Kor Ai Cheng, Dr Violet Tang, Ms Sun Tao, Ms Luo Wei, Ms Lydia Soon Hse Yin, Ms Anura Peters, Ms Janet Chua Pei Lu, Ms Tan Ee Chen Jaclyn, Ms Valerie Wu Jinying, Ms Eve Cheng, Ms Li Shu Zhen

Special thanks to Miss Joycelyn Ong Wei Ting and Miss Grace Yuan Zi Xin

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Notes

Emergency Card



Reminder:

1. Always keep your emergency pack next to the patient and KEEP CALM!
2. Only proceed to the next step if patient needs further support.
3. If the patient is breathing, ensure that he/her is stable and not in distress. E.g. SpO₂>95%, Heart rate 60-120 rpm and skin color is pink.
4. Monitor the patient closely and call the ambulance.

For **Tracheostomy Tube Dislodgement**, remember **R.A.C.I.N.G**

Reinsert (if you are trained)

Airway clearance

Cover stoma tightly

Inflate lung

Notify ambulance **995**

Good vital signs

For **Tracheostomy Tube Blockage**, remember **A.D.I.D.A.S**

Airway clearance

Deflate cuff

Inflate lung

De-cannulate (remove tube)

Activate ambulance **995**

SpO₂ and Heart rate

For **Ventilator Failure**, remember **R.R.C.A**

Rescue breathing via tube

Restart machine & use if functioning

Contact vendor

Activate ambulance **995** if unstable



**Home Ventilation and Respiratory
Support Service (HVRSS)**
Tan Tock Seng Hospital

Contact:
6357 7000 (Central Hotline)
Email: hvrss@ttsh.com.sg



Scan the QR Code with your smart phone to access
the information online or visit
<http://bit.ly/TTSHConditions-Treatments>.



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