Tan Tock Seng HOSPITAL

Home Ventilation and Respiratory Support Service

Tracheostomy Care at Home

Contents

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.

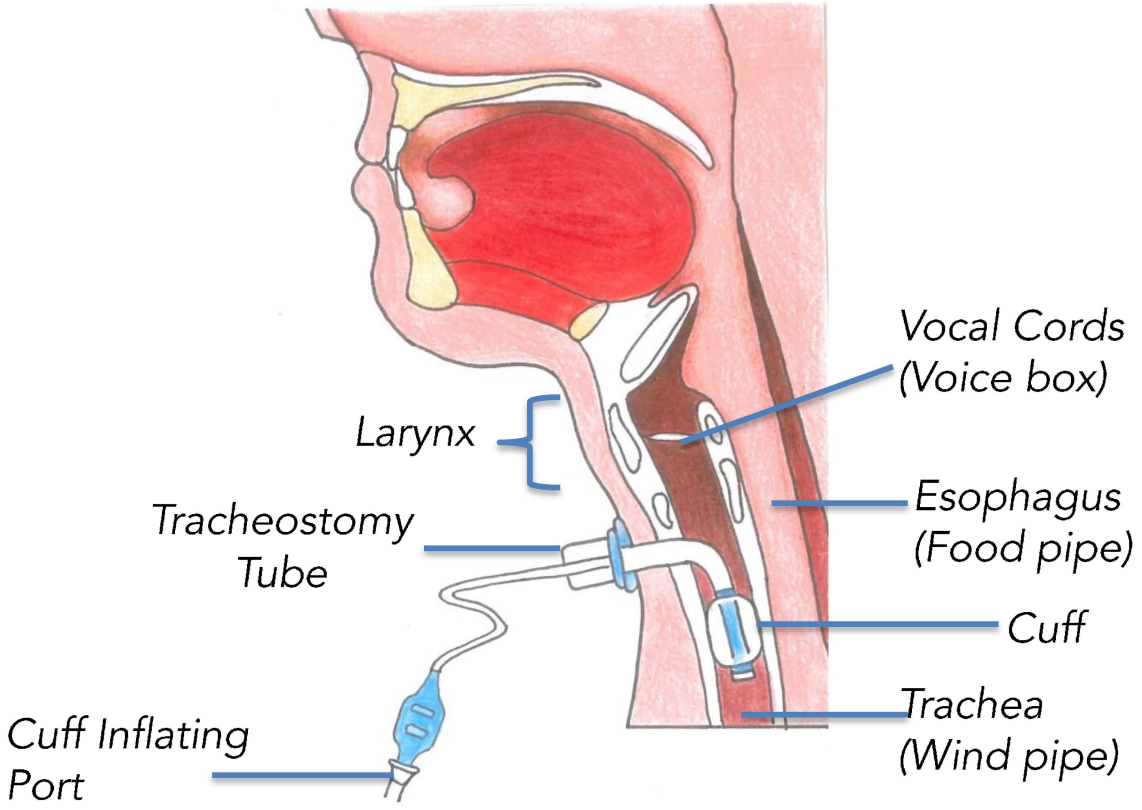
The TTSH HVRSS Team

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.



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

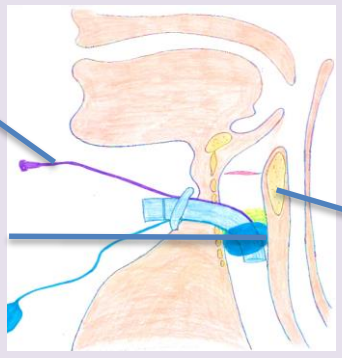
- With a hole along the tubing
- Facilitates speaking

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

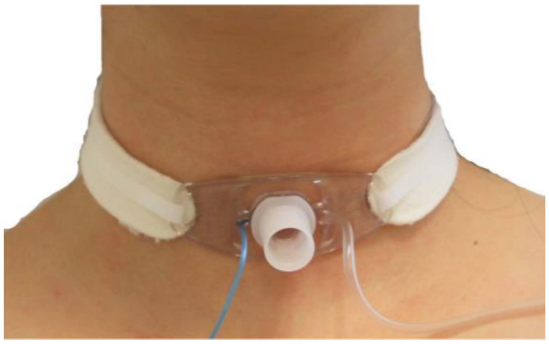
Facilitates the removal of secretion above cuff

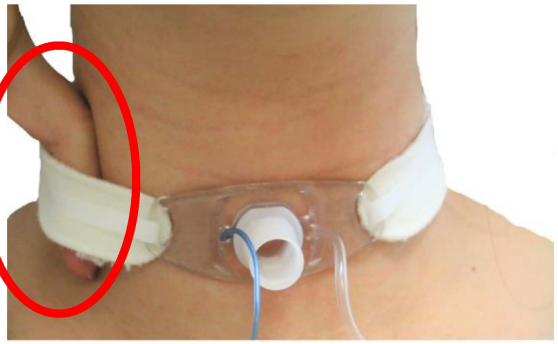


Tracheostomy Care

1A. Securing of Tracheostomy Tube to Neck

When securing the tracheostomy tube, allow <u>one</u> 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

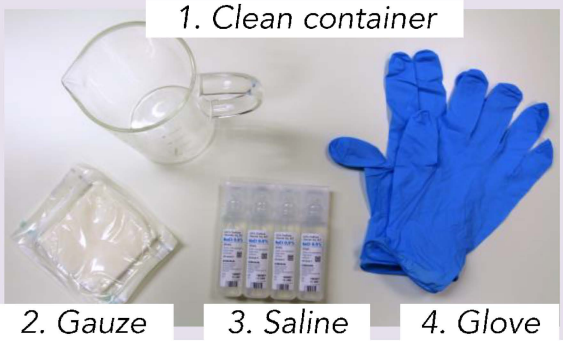
**A 'Strong Hold' is a device to secure the tracheostomy tube.*

Tracheostomy Care

2. Stoma Care

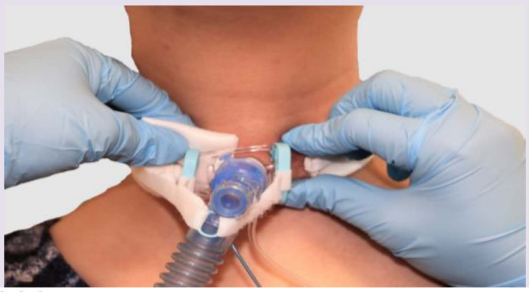
Regular cleaning is necessary to prevent stoma infection and skin breakdown.
Clean stoma once a day and when it is dirty.
Always wash your hands before touching the tracheostomy area.

Step 1: Prepare items

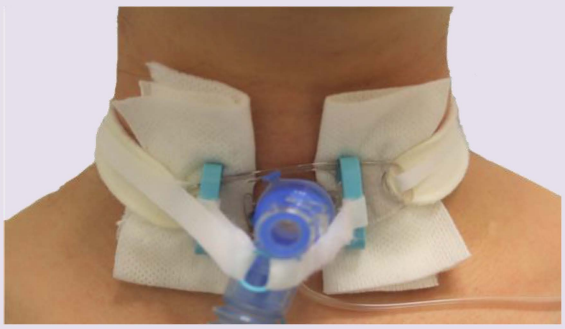


Step 2: Remove the old dressing. Stabilise the tube during removal

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



Step 4: Apply clean gauze after drying

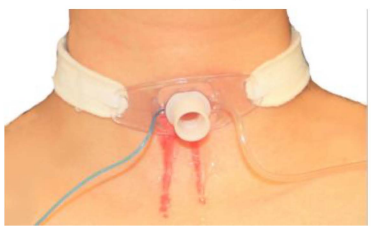


Reminder: Consult your doctor if you see the conditions below:

(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

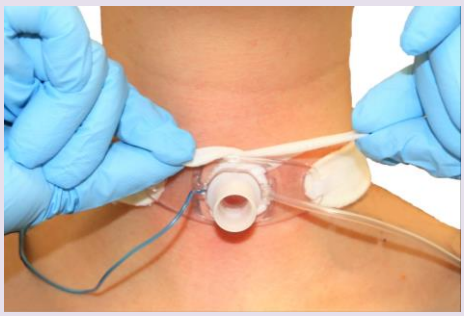
Option 1: Steroid cream (with prescription only)

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 (O_2)

In situations of breathlessness or low SpO_2, Supplemental Oxygen (O_2) can be given by an oxygen concentrator or oxygen tank.

A. Giving Oxygen with a Ventilator

1. Connect O_2 directly to ventilator

O_2 connecting point

OR

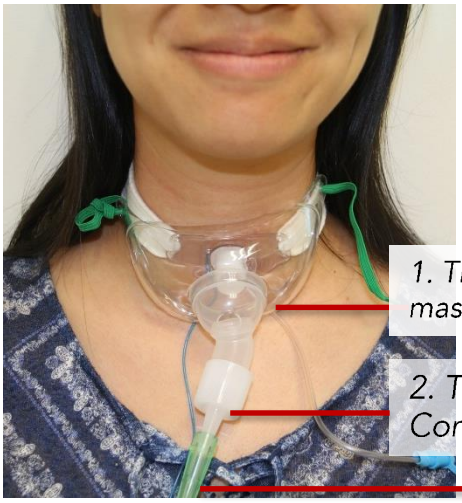
2. Use connector in circuit

O_2 connector

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 O_2 concentrator can be used to make air moist for patients with <u>trach mask</u>.

1. Trach mask



2. (HME)

Humidifier on O_2 concentrator (to moisten air)

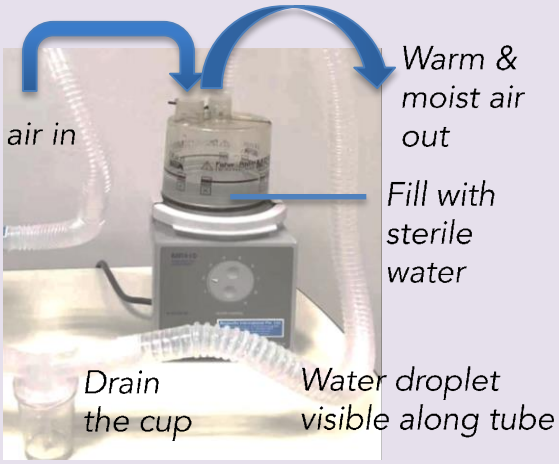
DO NOT use Humidifier on O2 concentrator with Heat and Moisture Exchanger (HME) AND ventilator.

Secretion Management
– Keeping Secretion Loose

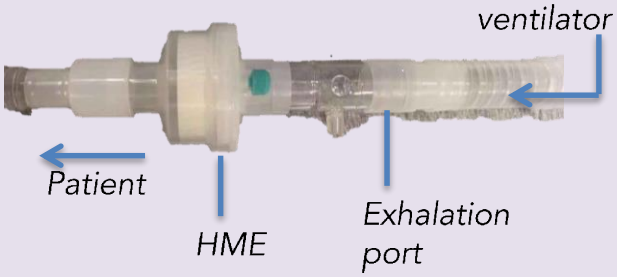
- Accumulation of secretion can cause infection or blockage. Hence, it is important to ensure regular clearing of secretion.
- Keep secretion loose by giving sufficient moisture or medication as prescribed by the doctor.

Secretion causing tube blockage

1. Heated Humidifier - Active

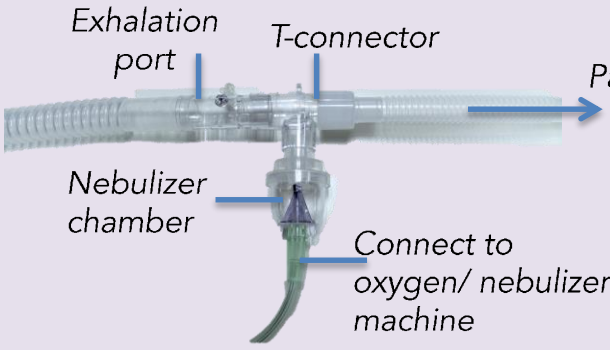


2. Heat and Moisture Exchanger (HME) - Passive



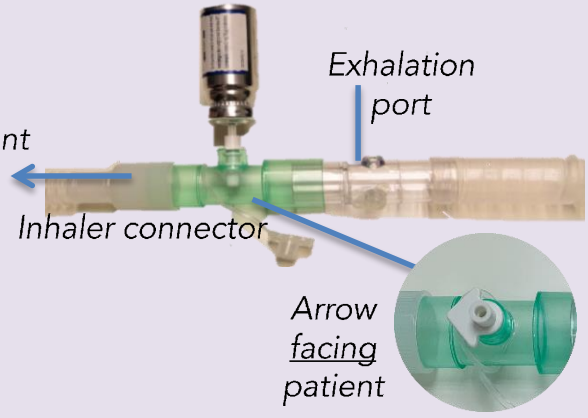
3. Nebulizer

- 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 SpO_2 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.

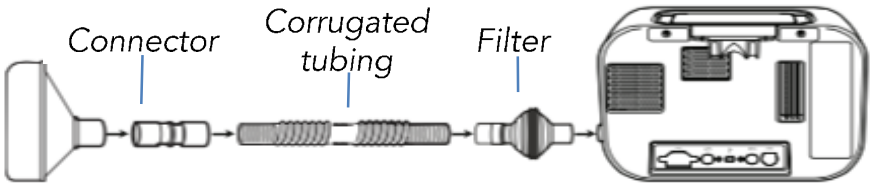
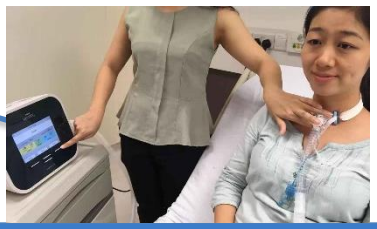


Photo illustration from cough assist E70 manual

1. Switch on machine & check MIE setting



2. Connect to trach tube

3. Start therapy

4. Four to six cycles (as tolerated)

5. Rest for 30 seconds

6. Change inner cannula

7. Perform suction, if needed

Ensure stable **SpO2, heart rate and blood pressure**

Inhale	Exhale	Pause
1 Cycle		

1 set = 4 - 6 cycles
Repeat 4 - 6 sets as needed

Secretion Management
– Removal of Secretion

B. Tracheostomy Suction

Items to prepare for tracheostomy suction:

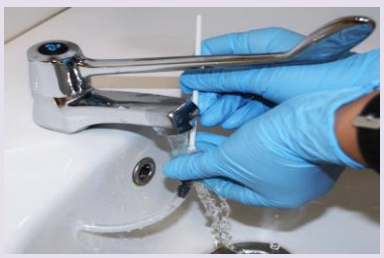
Step 1. Check SpO_2 and heart rate – ensure vital signs are stable

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

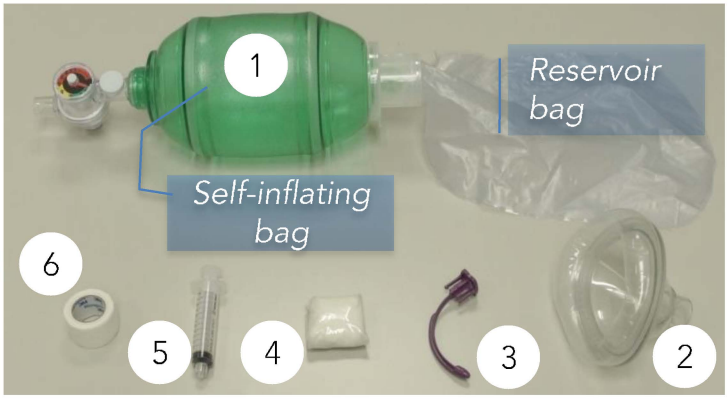
* In the hospital, sterile water is used instead of cool boiled water due to higher risk of cross infection.

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

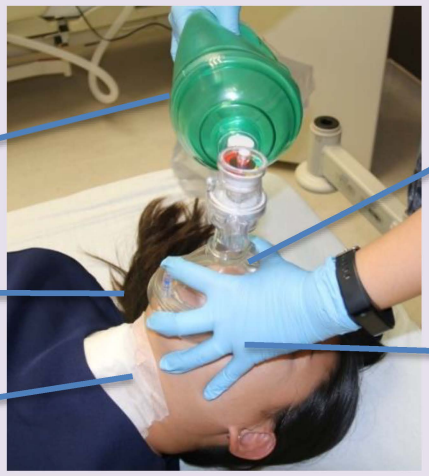
1. Attach the Ambu bag to tube
2. Squeeze half the bag and count "Breathe in", release and count "Breathe out". Count "1, 2, 3" before repeating again.
3. Look out for:
   - Rise and fall of the chest
   - Opening of the 'eye'
   - Monitor the SpO_2 levels (>95%), heart rate (60 – 120 rpm) and blood 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



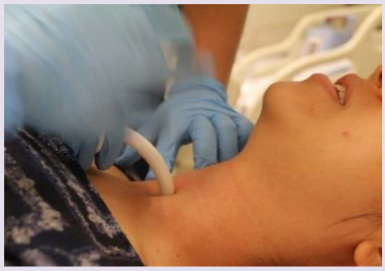
1. Thumb and index finger on mask forming a "C"

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

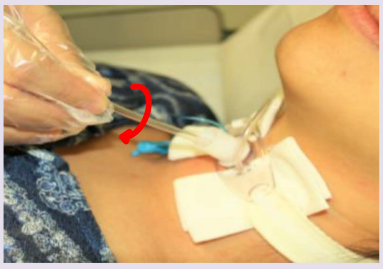
Tracheostomy Tube Dislodgement

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 SpO_2, 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.

Emergency Tracheostomy Tube Blockage

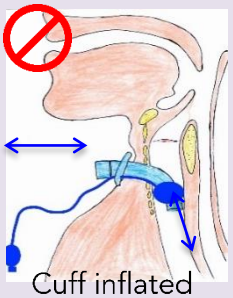
A tube blockage is suspected if the following occurs:

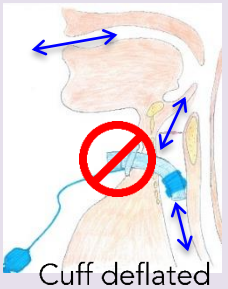
1) Patient experiences breathlessness, cold sweat, nasal flaring, SpO_2 <90%
2) Ventilator shows the following message: high pressure / low Vte / volume not delivered
3) Patient's face is turning blue (late sign)

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

1) Airway clearance
   - Perform suction and change inner cannula

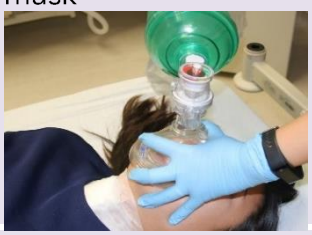

2) Deflate cuff if unable to clear blockage (*for cuffed tube*)
   - To allow airflow outside tube


Cuff inflated


Cuff deflated

3) Inflate lung using Ambu bag with face mask if unable to breathe

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

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

6) SpO_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.

Emergency 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

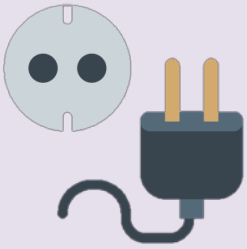
Step 4: Activate Ambulance if patient is unstable or cannot contact vendor

Reminder: If the patient is conscious, can breathe and maintain good SpO_2, 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

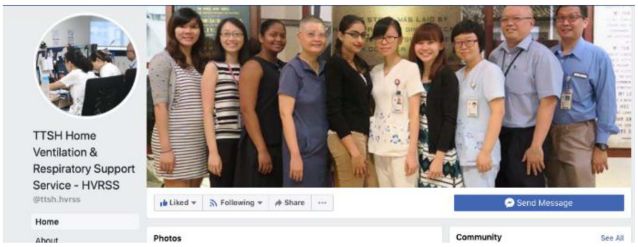
Servicing:
Regular servicing is recommended and when an error is suspected

Additional Resources

Facebook

www.facebook.com/ttsh.hvrss

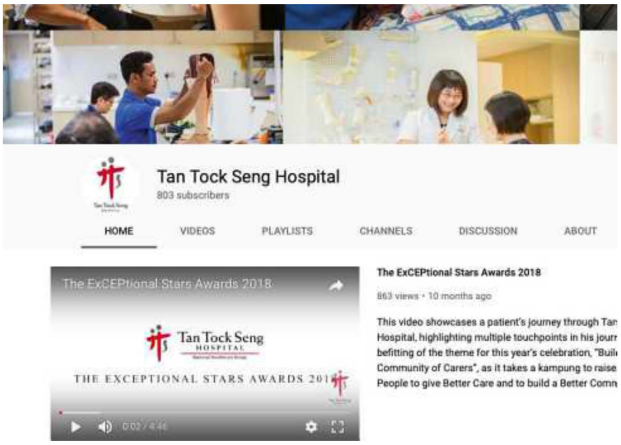
Check out our updated events, educational booklet and video resources



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

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. SpO_2>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**

- **R**einsert (if you are trained)
- **A**irway clearance
- **C**over stoma tightly
- **I**nflate lung
- **N**otify ambulance 995
- **G**ood vital signs

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

- **A**irway clearance
- **D**eflate cuff
- **I**nflate lung
- **D**e-cannulate (remove tube)
- **A**ctivate ambulance 995
- **S**pO_2 and Heart rate

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

- **R**escue breathing via tube
- **R**estart machine & use if functioning
- **C**ontact vendor
- **A**ctivate 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.

Tan Tock Seng HOSPITAL
National Healthcare Group

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