College of
Respiratory Therapists
of Ontario

Optimizing Respiratory Therapy Services

A Continuum of Care from Hospital to Home

A Training Manual for
Paediatrics & Adults
Healthcare Professionals and Caregivers

June 2010

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Should you identify any areas that require revisions or updates please let us know.

* Support for the development of this training manual was provided through HealthForceOntario's *Optimizing Use of Health Providers Competencies Fund.* Please refer to the back cover of this educational package to view a complete list of the project partners.

Glossary of Terms

The following is a list of words that you will find in the manual. Some of the terms are things you may hear your healthcare worker say. Always ask if you do not understand something.

A

Aerosol: Solution that is given in a mist

Apnea: Not breathing

Antibiotics: Medicines that fight infections

Artificial nose: A device that warms and moistens the air

Artificial airway: A cut made in the trachea resulting in an opening that bypasses the nose and mouth. Also called "trach" or "tracheostomy"

Aspiration: Food or liquid breathed into the airway instead of swallowed

Asthma: Difficult breathing with wheezing that is caused by swelling or spasms of the airways

B

Bacteria: Germs

Bacterial: Caused by bacteria

Breathing bag: Ventilating bag used for manual resuscitation

Bronchi: The two main branches leading from the trachea to the lungs

C

Cap: A small cap used to plug the trach opening

Cannula: The tube part of the trach tube

Carbon Dioxide (CO2): Gas eliminated from the lungs with exhalation

Cardiopulmonary resuscitation (CPR): Artificially supporting breathing and the circulation

Carina: The point of where the right and left bronchi separate

Catheter: A small tube placed inside the body to add or remove liquids

CPAP: A ventilation mode that helps a patient's own breathing efforts. Stands for continuous positive airway pressure

Cuff: The inflatable balloon on some trach tubes

Cyanosis: A bluish color of the skin due to reduced oxygen in the blood

D

Decannulation: Removal of the trach tube

Diaphragm: The big muscle below the lungs that controls breathing

Dysphagia: Difficulty swallowing

Dyspnea: Labored or difficulty breathing, shortness of breath

E

Edema: Swelling of tissue.

Encrustation: Hard and dried mucus that can build up around the inner cannula.

ENT: It is a term used for type of doctor that specializes in the 'ear nose throat'. ENT doctors do tracheotomy surgery

ET tube (endotracheal tube): A tube used to provide an airway through the mouth or nose into the trachea.

Epiglottis: "Trap door". A piece of cartilage that hangs over the larynx like a lid and stops food, and liquids from going down into the lungs

Esophagus: The tube between the throat and the stomach

Exhale: To breathe out

Extubation: Removal of the endotracheal tube

Expiration: Breathing out of air from lungs

F

Fenestrated: Having an opening in the trach tube to allow speech

Fenestrated inner cannula: An inner cannula with holes in it. This lets air go from the trach tube up to the mouth, and nose. The outer cannula must also have holes in it to work

Fenestration: A single hole or pattern of smaller holes

Flange: Part of the trach tube, also called the neck plate

G

Glottis: The sound producing part of the larynx that consists of the vocal cords

H

Heat moisture exchanger (HME): A filter device that fits into the end of the trach tube to warm and moisten the air the patient breathes

Home healthcare professional: Individual who gives care at home

Home healthcare supplier: Also called medical equipment supplier. They provide equipment, oxygen, trach care supplies.

Humidity: Moisture in the air

Hydrogen peroxide (H2O2): Mild cleaning agent

Hypoventilation: Reduced rate and depth of breathing

Hypoxemia: A low amount of oxygen in the blood

I

Inflation line: The thin plastic line attached to trach tube balloon on one end and pilot balloon on the other. It is used to inflate and deflate the trach tube balloon (cuff).

Inflation syringe: A plastic syringe without needle used to inflate the trach tube balloon (cuff)

Inhale: To breathe in.

Inner cannula: The inner removable tube that fits inside the outer cannula. May be removed to clean or exchanged with different inner cannula.

Inspiration: To breathe in

Intubation: Placement of a tube into the trachea to help with breathing.

L

Larynx: "Voice box" or "Adams apple". Is just on top of the trachea.

Lumen: The inside of the trach tube through which air passes.

M

Mucous: Slippery fluid that is made in the lungs and windpipe

Mm: Short form for millimeter. One millimeter equals .039 inches

N

Nebulizer: A machine that puts moisture and or medicine into the airway and lungs

Neck plate: Part of the trach tube that sits against the neck, also called the flange

Nosocomial infection: An infection that you got during your hospital stay

O

Obstruction: Blockage

Obturator: The guide that goes in the trach tube to help insert the tube into the trachea

Outer cannula: The main tube with neck plate that is placed into the trachea

Oximeter: Equipment that monitors the amount of oxygen in the blood

Oxygen: A gas that the body needs to stay alive

P

Patent: Open, clear airway

Pneumonia: Swelling of the lung that is often caused by germs

R

Respirologist: A doctor who looks after the lungs

Respite: A break for caregivers who care for a disabled family member at home

Retractions: Pulling or jerky movement of the chest and neck muscles. It's a sign of respiratory distress

S

Secretions: Another word for mucous.

Speaking valve: A one way valve that lets air come into the trach tube when you breathe in. When you breathe out, the valve closes sending air out past the vocal cords and through the mouth so speech is possible.

Speech language pathologist: A person trained to help with speaking and swallowing problems

Stoma: The hole in the neck where you insert the trach tube

Sterile: Very clean and free from germs

Suctioning: One way to keep the inside of the trach tube clean and free of mucus. A small catheter is connected to a suction machine and placed into the trach tube to remove mucous

Swivel neck plate: A neck plate that can swivel up and down and/or side to side. Allows for greater range of head and neck movement without discomfort.

Syringe: Device to measure medicine

T

Trach: An opening into the trachea

Trach mask: A device that fits on the end of the trach tube to provide moisture

Trachea: "Windpipe". The tube through which air flows between the larynx and the lungs

Tracheal wall: The inside lining of the trachea

Trach Tube: A tubular device placed into the trach

Trach Ties: Cotton twill or Velcro tapes used to hold the trach tube in place. Connects to the slots in the trach tube neck plate

V

Ventilator: A machine that helps a person breathe

Virus: A germ that can cause illness

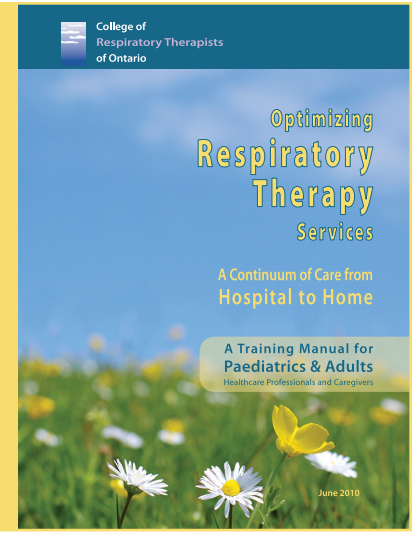
Viscid: Thick or sticky

Vocal cords: Two strips of tissue in the voice box in the neck, which allows vocalization

W

Wheeze: A whistling sound coming from the lungs because of a narrowing in the wind pipe or airways.

Introduction to the Manual



Mechanical ventilation was first developed during the polio epidemic in the 1950s when patients were placed in an iron lung. Today we use positive pressure ventilation with an endotracheal tube or a tracheostomy tube. For the majority of patients, ventilation is usually short term and is discontinued after the respiratory or ventilatory failure has resolved. Most patients are weaned off the ventilator with no problems. However, for some patients weaning is a challenge.

If a patient cannot be weaned off the ventilator they are deemed 'ventilator-dependent'. Chronic ventilated patients can be found in acute-care hospitals, ventilator step-down units, long term care facilities, and at home. It is ideal and safe to transition stable, chronically ventilated patients to their homes.

A stable, ventilator dependent patient can be transitioned successfully from the ICU to home, or a long term care facility. This shift from acute care to home care has resulted in improved quality of life, decreased morbidity and mortality, and reduced care costs. Patients and families report that they are happier at home and have a better quality of life.

The intent of this document is to assist respiratory therapists and other healthcare providers to transition chronically ventilated individuals from hospital to the community. A successful hospital-to-home transition requires careful planning, and plenty of patient and family education. Prior to planning the transition, the patient must meet discharge criteria, such as being medically stable. These criteria can be found in this manual. For a smooth transition to occur, the patient needs a supportive family, caregivers and a medical team that communicates well. Once the ICU discharge criteria are met, the process of educating the patient and caregivers can begin. The *Education Checklist* and *Learning Log* will assist the educator and learner track the education process.

It is important to observe the caregivers participating in the care of the patient, while the patient is in the acute care setting. It is critical as a healthcare provider to document the learner's competency. A number of checklists have been provided in this manual to assist with this documentation requirement. All must be competent and comfortable prior to discharge.

The education process can take 2 - 4 weeks to complete, prior to a patient's discharge. To ensure the skills have been mastered, and to provide ongoing support, a comprehensive follow up plan is then continued within the community.

The material provided to the patient includes basic anatomy and physiology of the respiratory system, ventilator parameters, alarms, circuit changes, and backup power sources. Also covered are suctioning, stoma and tracheostomy care and how to respond in an emergency. This information is found in the *Home Ventilation & Tracheostomy Care* manuals.

There is also a *Troubleshooting Guide*, as an additional reference. For those patients on non-invasive ventilation refer to the *Non-Invasive Positive Pressure Ventilation* guide.

There are other tools and checklists to help you prepare the patient, their families and caregivers. The *Useful Web Resources* and *Glossary of Terms* can also be helpful. Team meetings need to take place, prior to and following discharge, between the acute care healthcare providers and the Community Care worker.

The intent of this document is to assist respiratory therapists and other healthcare providers to transition the chronically ventilated individual from the hospital to the community. If you have any suggestions or comments about this manual please forward them to The CRTO.

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Introduction to the CD

The CD, found in the inside back cover, contains all the information and worksheets that are presented here in this manual. The materials are sorted by 'tab' or topic and are ready for print. To view the files, you must have Adobe Reader software. To obtain Adobe Reader, visit, http://get.adobe.com/uk/reader.