

Airway Clearance

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Topics

Suctioning and suctioning equipment

Medications to facilitate airway clearance

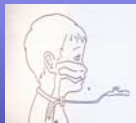
Bronchial hygiene modalities

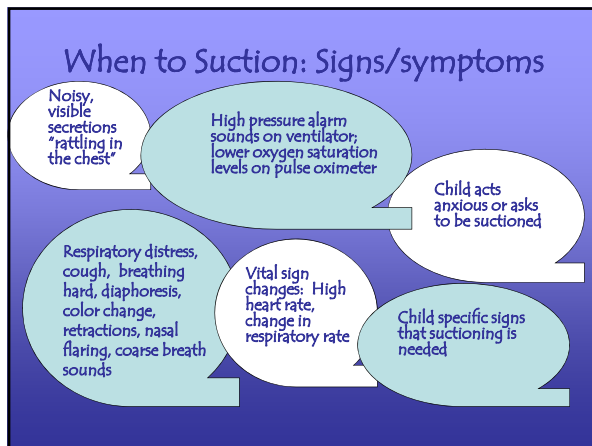
Preparing for suctioning

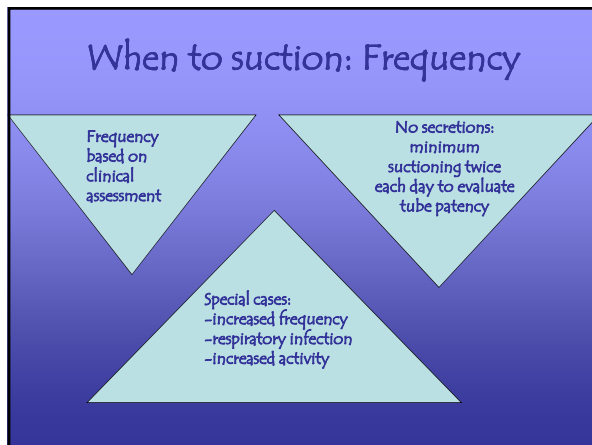
Why: does the child have a trach
or why does the child need a ventilator?

How: often is the child suctioned?
do the secretions normally look?

What: signs indicate a need for suctioning?
is the child's oxygen requirement?
size tracheostomy tube?
size suction catheter?
depth to suction?
pressure setting on the suction machine?
use of manual resuscitation?







Suction Machine

◊ Recommended pressures:

	mm Hg	Inches Hg
Infants	60-80	5-10
Children	80-100	5-10
Teen/Adults	100-120	10-15

◊ Is part of emergency "Go-Bag"

◊ Internal battery lasts approximately 45 minutes

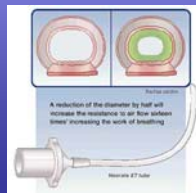
How to suction: Sterile vs Clean Technique

- ◊ Sterile technique used in the hospital setting
- ◊ Clean used in the home setting



How to suction: Suctioning technique

- ◊ Apply suction pressure on insertion and withdrawal.
- ◊ Twirl the catheter when inserting and withdrawing to effectively suction the tube wall

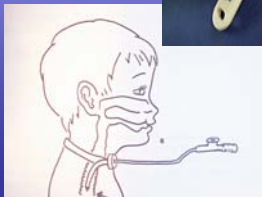


Retrieved from <http://www.fphcare.com/humidification/neonate1.asp>

How to suction: Depth

Definitions

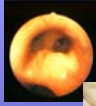
- ◊ Shallow
- ◊ Pre-measured
- ◊ Deep



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How to suction: Pre-measured depth

- ◊ Prevent internal granulomas
- ◊ Measure the catheter so that distal side holes are just past the tip of the tracheostomy tube
- ◊ Reference guide showing depth



How to suction: Oxygenation/hyperventilation

- ◊ Apply suction for less than 5 seconds
- ◊ Allow child to rest for 10 seconds after each suctioning pass
- ◊ Use manual resuscitation device to give breaths after the first suctioning pass for children on ventilators, or on oxygen or if ordered.



How to suction: Saline use



- ◊ Reasons for use
 - stimulate a cough
 - loosen secretions
 - lubricate catheter
- ◊ Possible problems
 - oxygen desaturation
 - poor mixing with mucus
 - contamination

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How to suction: Saline use Consensus

- ❖ Routine use of normal saline is **NOT** recommended
- ❖ Maintain adequate humidification
- ❖ Use 1-3 ml



How to suction: Supplies and Equipment

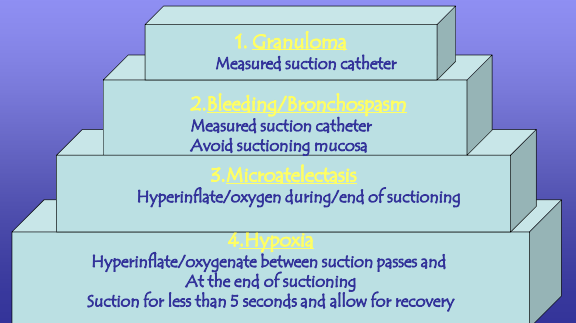
- ❖ Suction machine with bottle, gauge and connecting tubing
- ❖ Appropriate size suction catheter
- ❖ Clean gloves
- ❖ Clean paper or plastic cup with sterile water
- ❖ Clean paper or plastic cup with solution to clean catheter
- ❖ Catheter storage container



Suctioning a Child on a Ventilator



Complications of Suctioning



Assessment of Secretions

- ◊ Color: Change due to: Infection (yellow in AM common)
- ◊ Blood tinged: Suctioning too deep; Granuloma, pneumonia, arterial bleed
- ◊ Consistency: Change due to: Inadequate humidification, infection or dehydration
- ◊ Odor: Change due to infection
- ◊ Amount: Increased amount may indicate infection

Key Points: Airway clearance: Suctioning

- ◊ Clean technique in home setting
- ◊ Suction both on insertion and removal of the catheter, twirling the catheter
- ◊ Suction less than 5 seconds per pass; allow child to rest for 10 seconds between passes
- ◊ Oxygenate/ventilate between passes
- ◊ Assess the color, odor, quantity and consistency of the secretions



Medications to Facilitate Airway Clearance

◇ Bronchodilators (Albuterol, Atrovent)

◇ Inhaled steroids (Pulmicort)

◇ Mucolytics (Mucomyst, Pulmozyme)

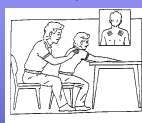


Bronchial Hygiene Modalities Chest Physiotherapy Postural Drainage

Assists in
movement
of secretions
out of the
lungs



Bronchial Hygiene Modalities Chest Physiotherapy Postural Drainage



Bronchial Hygiene Modalities Intrapulmonary Percussive Ventilation (IPV)*



High flow
mini bursts
of air

Delivery of
nebulized
medication using
pneumatic
interface



Phasitron

Bronchial Hygiene Modalities Cough Assist*

◊Improves ineffective
cough



◊Positive pressure rapidly
shifts to negative pressure
simulating a cough



Bronchial Hygiene Modalities Vest Therapy



