

UNIVERSITY OF WASHINGTON MEDICAL CENTER
RESPIRATORY CARE SERVICES
TASK OUTLINE
ADULT/PEDIATRIC APPLICATION

MODE: Manual Hyperinflation Therapy

- I. APPLICATION: Manual hyperinflation therapy is indicated for the prevention of atelectasis, improve lung and chest wall compliance, and for cough augmentation therapy when combined with quad cough maneuvers for neuromuscular patients with respiratory insufficiency.
- II. EQUIPMENT: Self inflating resuscitator bag
One-way inline valves
Corrugated ventilator tubing
Plastic mouthpiece or air cushion facemask
Assemble the pieces as pictured:

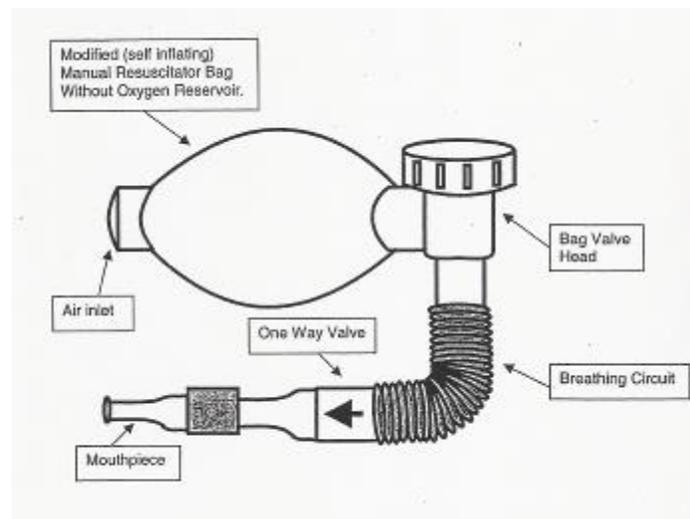


III PROCEDURE:

Hyperinflation (alveolar recruitment):

1. Obtain a physician's order to initiate manual hyperinflation/cough augmentation therapy.

2. Introduce yourself to the patient and provide instruction in how manual hyperinflation therapy works and how it is administered.
3. The patient must have adequate oral muscle strength to both hold a mouthpiece and maintain an adequate lip seal. If the patient has oral muscle weakness an air cushion facemask can be used (insufflation will be limited due to facemask air leak).
4. Instruct the patient to hold the mouthpiece between their teeth and maintain a tight lip seal.
5. Hyperinflation is administered by providing a series of short compressions with the resuscitator bag known as “breath stacking”.
6. Direct the patient by saying “breathe in” with each short compression of the resuscitator bag. The patient should try to hold the insufflation breaths by closing the glottis rather than by maintaining a mouth seal in between maneuvers. Try to “stack” as many breath repetitions as possible in order to produce maximal hyperinflation.
7. Direct the patient to hold the maximum insufflation volume from 6-8 seconds before exhaling. This will improve alveolar recruitment, lung and chest wall compliance.
8. A regimen of 8-10 hyperinflation maneuvers, done 2 to 3 times per day is suggested to improve and maintain lung and chest wall compliance.





IV Cough Augmentation:

Cough augmentation can be performed by combining manual hyperinflation with a quad cough maneuver. A quad cough maneuver is performed by making a rapid and firm compression to the lower abdominal area using one or both open hands (see illustration on the next page).

9. When maximum hyperinflation is reached immediately cue the patient to cough while performing an abdominal compression maneuver. Coordinating the patient's cough effort by verbally directing them to cough in conjunction with initiating abdominal compression will produce the highest peak cough flow velocity. Practice between the caregiver and patient will produce the best coordination, insuring the best results.

Note: Quad Cough maneuvers should not be administered to a patient who has received a Greenfield filter (a filter

placed in the inferior vena cava to prevent the passage of blood clots into the heart and lungs). Quad coughs can be administered to patients with gastrostomy tubes. Abdominal compression should not be performed immediate to the gastrostomy tube.

Manually-assisted cough

Other Remarks

The ALP Association (ALSA)

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