

Guidelines for use of The Vest® Airway Clearance System In Patients with Neuromuscular conditions



Introduction

The Vest® Airway Clearance System has been proven to benefit patients in the removal of retained secretions due to both acute and chronic respiratory conditions.

The Vest® Airway Clearance System consists of an inflatable vest connected by hoses to an air pulse generator. The inflatable vest wraps around the thoracic and when activated, rapidly inflates and deflates compressing and releasing the chest wall, creating airflow in the lungs and airway oscillations.

The Vest® Airway Clearance System loosens and mobilizes secretions from lower airways to upper airways where they can be more easily coughed out or removed through use of suction.

The Vest does not rely on gravity to move secretions upward so no special positioning is required and all lobes of the lungs are treated simultaneously

Indications

Patients suffering from, but not limited to:

Ineffective cough or secretion clearance, due to immobility, deconditioning, muscle weakness or surgical procedures

Motor Neurone Disease, Cerebral palsy, Muscular Dystrophy and other myopathies, quadriplegia, upper abdominal or cardiothoracic surgery

Secretion retention associated with impaired ventilation and/or gas exchange

Atelectasis, Pulmonary Infiltrates, existing or high risk of Pneumonia, Aspiration Lung Injury, Pulmonary insufficiency following surgery or trauma, Acute Respiratory Failure

Airway clearance dysfunction resulting in impaired ventilation and/or gas exchange

COPD, Cystic Fibrosis, Bronchiectasis, Emphysema, Chronic Bronchitis

For individuals whose cough function and pulmonary defenses are compromised by weakness of respiratory and swallowing muscles, skeletal deformity, and immobility, The Vest® airway clearance system can offer a practical solution to aid airway clearance.

The Vest® Airway Clearance System is not intended to treat any specific underlying disease or condition, but rather to provide airway clearance therapy.

Absolute contraindications

- Head or neck injury that has not been stabilized
- Active hemorrhage with hemodynamic instability

Relative Contraindications

- Please refer to User Manual

Frequency and Duration of Therapy

Hospital: 4 times per day (or adjust to specific patient needs)

Home: 2 times per day (or adjust to specific patient needs)

Treatment Time: average therapy session 10-20 minutes

Vest Garment Styles

A full range of Vest garments are available to suit individual requirements. For patients who have deformities of the thoracic cage the wrap style Vest garment may be easier to apply and remove

Full Style SPU Vest Garment



Full Style Classic Reusable Vest Garment



Reusable Chest Vest Garment



Wrap Style SPU Vest Garment



Permanent Wrap Vest Garment



Single Patient Use (SPU) garments are designed to aid good infection control practices in hospitals or other health care facilities.

Each patient receiving Vest Therapy should be provided with their own Vest garment and set of air hoses.

The garments will last approximately 40-50 treatment sessions before needing to be replaced.

See user manual for further details

Applying The Wrap Vest Garment

- Measure chest circumference at the nipple line for appropriate garment size
- Select correct size garment according to patient's chest size
- Place deflated wrap garment under patient and not in direct contact with the skin
- Position comfortably under arms and centre over nipple line
- Have patient inhale if able then secure gently but snugly around thorax - pad incision sites or around tubes, lines, drains (all should be sutured in)
- Insert air hoses into slots in wrap garment and secure them with velcro strap



Treatment Protocol

Normal Mode; set Frequency, Pressure and Time

Frequency - 12

May decrease to 10 or increase to 14 to patient tolerance / comfort

Pressure – 1 -4 (using wrap style vest)

May decrease to 1 or increase up to 4 to patient tolerance / comfort

If using Full style vest, aim for pressures between 4 and 6. It may be necessary to start with lower pressures to acclimatize the patient to the therapy and increase with patient tolerance / comfort

Time up to 20 minutes

Pressure should be set at the highest level that is comfortable for the patient. Optimal frequency and pressure settings are that which produce the highest airflows and the largest volumes per chest compression during tidal breathing. It is possible to automatically deliver different frequencies and pressures during the treatment session using programme mode.(105 and 205 models only) Full details in the user manual.

Some patients may need to start at lower settings 8 -10 Hz and the lower pressure settings to build a tolerance for therapy

Patients who have a history of poor secretion clearance may produce large quantities of secretions after therapy

Always refer to user manual for detailed product user instructions

Clearance of mobilized secretions (as required and/or appropriate)

- Suction equipment, manually assisted cough or mechanical cough device should be readily available to assist with removal of secretions if required
- The therapy may mobilize a large volume of secretions in the first few treatment sessions and for a minimum of 30-60 minutes following therapy
- Staff or carers should supervise patient to assist in removal of secretions as needed
- If patient can cooperate, encourage him/her to deep breathe and cough periodically, usually every 5 minutes, throughout treatment
- The Vest is frequently used in combination with mechanical cough devices

Reassess Patient every 24 hours Physician or Therapist may need to change / modify therapy parameters



Enhancing Outcomes for Patients and Their Caregivers...

Special Considerations:

Mechanically ventilated patients

- If patient has a tracheostomy tube care should be taken to ensure proper placement and security prior to placement.
- If patient is being ventilated non invasively (by mask), position of mask, and effective pressure/ volume delivery should be verified prior to initiation of therapy
- Pressure is exerted on the chest wall during Vest therapy. This may increase ventilator peak pressures or may reduce tidal volume delivery
- Ventilator parameters such as exhaled tidal volume and exhaled minute volume may read inaccurately during Vest therapy
- During therapy and upon completion of therapy, security and proper placement of the endotracheal or tracheostomy tube or mask should be verified (if present)

Chest tubes, monitoring lines and other invasive equipment

- Care should be taken to ensure proper placement and security of lines, ports and feeding tubes, etc. prior to initiation of treatment
- Insertion sites may be padded with foam or a small towel to avoid pressure or oscillation directly over the site
- During therapy and upon completion of therapy, security and proper placement of all lines, ports and feeding tubes, etc. should be verified

Keep head elevated during therapy to reduce the risk of aspiration of secretions during therapy

If patients have implantable pumps, feeding tubes, ports and invasive monitoring lines the Vest is safe to use, but may require padding of the site.

The Vest should be used before meals or wait for at least one hour following eating. In the case of tube feeds, ideally stop the tube feed before using Vest Therapy.

Patients who are non invasively ventilated should be monitored during initial therapy

The above are suggested guidelines and are not a replacement for clinical judgment

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