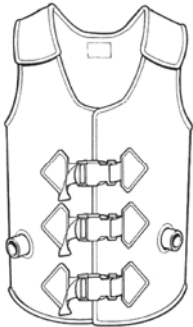


THE VEST<sup>®</sup> AIRWAY CLEARANCE SYSTEM

Breathe a little easier.™

Designed to provide Airway Clearance Therapy. The Vest<sup>®</sup> Airway Clearance System consists of an inflatable garment connected by Air Hoses to an Air Pulse Generator. The Air Pulse Generator rapidly inflates and deflates the inflatable garment, compressing and releasing the chest wall to create airflow within the lungs. The airflow created by High Frequency Chest Wall Oscillation, or HFCWO, results in cough like shear-forces, alterations in the physical properties of mucus, and increases in mucus mobilization.



Full Vest



Wrap Vest



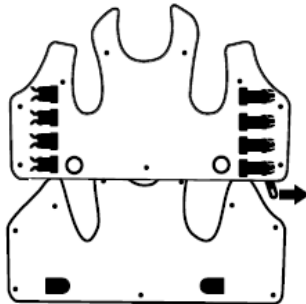
Wheeled Carrying Case



Model 105  
Air Pulse Generator



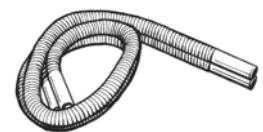
Chest Vest



Washable Vest



Remote Control



Air Hoses

Specifications
<p><b>Air Pulse Generator</b></p> <ul style="list-style-type: none"> <li>• 17 lbs.</li> <li>• 9.5" H x 13" W x 9.5" D</li> </ul>
<p><b>Inflatable Garment</b></p> <ul style="list-style-type: none"> <li>• Disposable garment material: polyurethane-coated nylon</li> <li>• Several sizes available</li> </ul>
<p><b>Electrical Requirements</b></p> <ul style="list-style-type: none"> <li>• 100V AC to 230V AC, 50/60 Hz</li> <li>• 3.4 Amps @ 100V AC</li> <li>• 2.0 Amps @ 230V AC</li> <li>• Underwriters Laboratories (UL) listed</li> </ul>

Hill-Rom and Advanced Respiratory Inc., reserve the rights to make changes without notice in design, specifications, and models.

Product Information

Breathe a little easier.™

## Widely Accepted Therapy

The Vest<sup>®</sup> System is:

- Prescribed by more than **17,000** physicians
- For more than **97,000** patients
- Reimbursed by more than **1,150** health plans nationwide
- Recognized in the Merck Manual and Mosby's Case Management Guidelines

## Multiple Diseases and Conditions

The Vest<sup>®</sup> System has been prescribed for patients to aide in airway clearance that can be associated with roughly **695** diseases and conditions, including:

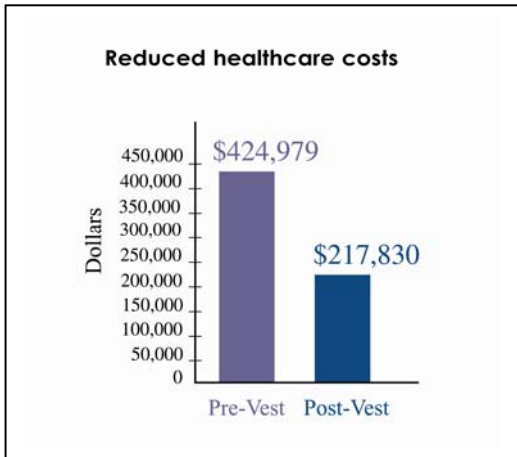
- Amyotrophic lateral sclerosis
- Cerebral palsy
- Cystic fibrosis (CF)
- Muscular dystrophy
- Post-lung transplantation
- Spinal cord injury
- Ventilator dependence

Patients diagnosed with any of these diseases often share a common problem: impaired airway clearance resulting from any one or a combination of the following pulmonary risk factors:

- Recurrent respiratory infections
- Mucus plugging and atelectasis
- Secretion hyperproduction
- Abnormally thick, sticky secretions
- Ineffective cough
- Respiratory muscle weakness
- Increased risk for aspiration
- Immobility
- Restrictive lung disease
- Artificial airway

THE VEST® AIRWAY CLEARANCE SYSTEM

Breathe a little easier.™



The Vest® System has proven to be a cost effective way to help reduce rising health care expenses. Improved airway clearance with The Vest® System means fewer respiratory illnesses requiring hospitalizations and other costly medical interventions such as intravenous antibiotic usage.

**Eliminating even one hospitalization may offset the cost of a lifetime of therapy with The Vest® System.**

After one year of therapy with The Vest® System, 23 BlueCross BlueShield members with CF demonstrated a 49% reduction in total health care costs.<sup>1</sup>

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**More than 1,150 health plans and government funded programs, including Medicare, have found The Vest® System to be medically necessary for some of their members.**

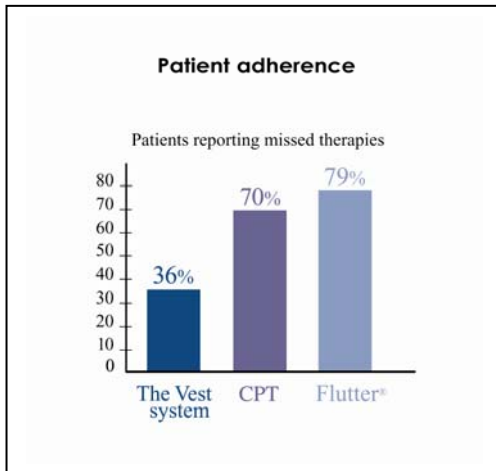
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↓ Cost Effectiveness

Breathe a little easier.™

Research shows that patient adherence to Airway Clearance Therapy is linked to patient satisfaction and quality of life. The Vest<sup>®</sup> System offers many advantages over other airway clearance therapies that contribute to patient satisfaction and ultimately to improved adherence.

- Simultaneous treatment of all lung fields results overall increased therapy in a shorter treatment time.
- No positioning, breathing techniques or special caregiver skills are required.
- Aerosol therapies may be administered during The Vest<sup>®</sup> System therapy.
- Product support and follow up training are provided by Advanced Respiratory Inc.
- No caregiver is required by many users; disabled users may require minimal assistance.



**Increased adherence to therapy also can impact overall health care costs. The benefits of maintaining a clear airway, with effective airway clearance can include fewer infections, decreased use of IV antibiotics, and fewer hospitalizations.**

A recently validated survey instrument to assess patient satisfaction with various airway clearance techniques has shown that The Vest<sup>®</sup> System users reported the highest levels of overall satisfaction and adherence when compared to CPT and Flutter<sup>®</sup> valve. Increased satisfaction is associated with fewer missed treatments.<sup>2</sup>

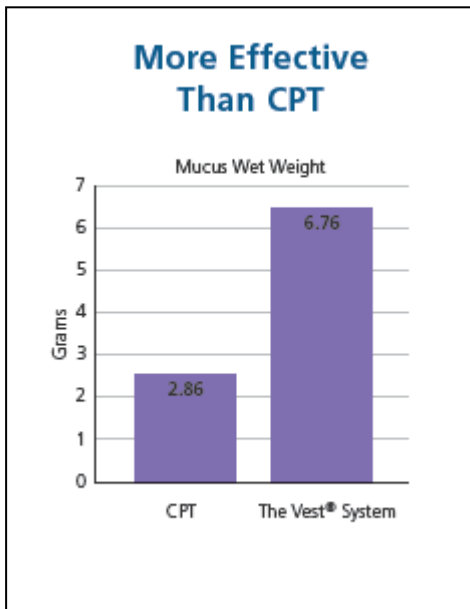
Flutter<sup>®</sup> is a registered trademark of Varioraw Percutive SARL.

Therapy Adherence

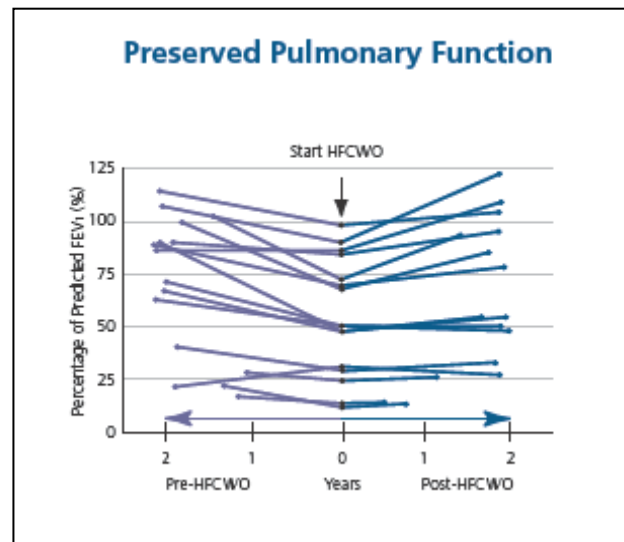
THE VEST® AIRWAY CLEARANCE SYSTEM

Breathe a little easier.™

High Frequency Chest Wall Oscillation (HFCWO) using The Vest® System has been studied extensively. Safety and efficacy are established by more than 80 clinical trials conducted at over 60 facilities.<sup>3,9</sup> Peer-reviewed studies demonstrate that The Vest® System clears mucus<sup>3,4</sup> and improves or maintains pulmonary function<sup>5,6</sup> more effectively than conventional chest physiotherapy (CPT).



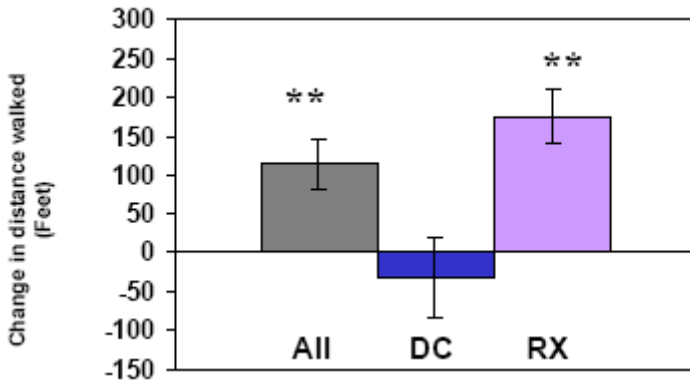
In a comparative study of 29 patients, The Vest® Airway Clearance System cleared three times more mucus than CPT.<sup>4</sup>



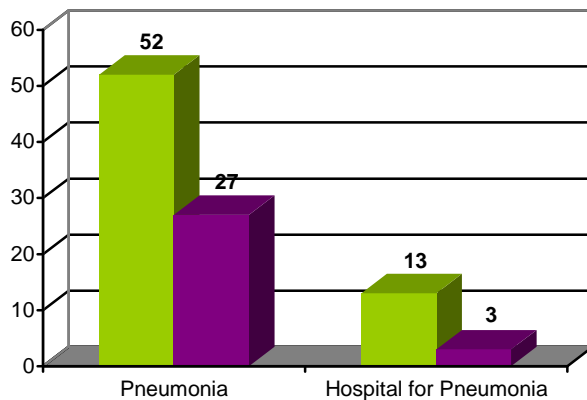
In a four year study of CF patients comparing CPT to The Vest® System, 94% of subjects showed either a slowing or reversal of their decline in percent FEV<sub>1</sub> after two years of The Vest® Airway Clearance System Therapy.<sup>5</sup>

Clinical Outcomes

Breathe a little easier.™



**Fig. 1.** Patients completing 90-days of HFCWO therapy exhibited a statistically significant improvement ( $p < 0.001$ ) in the 6-min distance walked; however only the patient group selected to receive a Lifetime prescription (RX) reached both statistical and clinical significance ( $p < 0.001$ , 175 ft improvement). The RX group also had less change in perceived breathlessness upon exertion (mean difference in Borg score change at 90 day vs 0 day =  $-0.5 \pm 0.2$ ,  $p < 0.02$ ). There were no significant differences in SaO<sub>2</sub> or heart rate changes. The group that discontinued (DC) therapy had no improvement in their 6-minute walk distance.<sup>10</sup>



- Eleven quadriplegic Cerebral Palsy patients
- All fed by G-tube
- Five with tracheostomy
- Three with active seizure disorder
- In a 12-month retrospective, 12-month prospective assessment of The Vest® System
- Effective airway clearance resulted in statistically ( $p < 0.05$ ) and clinically significant reductions in total pneumonias (52 – 27) and pneumonia-related hospitalizations (13 – 3)<sup>11</sup>

Clinical Outcomes

Breathe a little easier.™

Advanced Respiratory Inc., a Hill-Rom Company and its patient-focused programs result in good therapy adherence, remarkable health outcomes, and ultimately improved quality of life.

### **Patient Training**

A nationwide network of licensed health care professionals provides individual patient training. The trainer introduces the device to the patient, reviews prescribed protocol, emphasizes the role of airway clearance in disease management, and employs methods for encouraging therapy adherence.

Each patient is offered the choice of training in the home or via telephone. Either training option provides comprehensive instruction on equipment use and technical assistance.

### **Outcomes Monitoring Program**

All patients receiving The Vest<sup>®</sup> System are enrolled in the Outcomes Monitoring Program. Health care professionals call to gather data regarding use of The Vest<sup>®</sup> System. Data is compiled into reports documenting patient satisfaction and therapy adherence. This outcomes information can provide:

- Assistance to the health care team in evaluating treatment outcomes and protocols
- Help to document to third party payors, that The Vest<sup>®</sup> System appears to be contributing in positive health outcomes

### **Improved Quality of Life**

Patients who use The Vest<sup>®</sup> System often report a high level of satisfaction with its use and positive effects on their quality of life. Effective airway clearance often can help them feel better because they don't have to struggle to breathe and feel less fatigued. Users of The Vest<sup>®</sup> System often feel better, miss less work and school, and are able to participate more fully in activities because effective airway clearance results in decreased use of intravenous antibiotics, fewer respiratory infections and fewer hospitalizations.

They often have more independence, which together with increased satisfaction, leads to self-management and increased adherence to therapy. The earlier effective airway clearance begins, the greater the chance for improved health and quality of life.

Serving the Patient

Breathe a little easier.™

- <sup>1</sup>Ohnsorg F. A cost analysis of High Frequency Chest Wall Oscillation in cystic fibrosis. *Am J Respir Crit Care Med* 1994; 149(4): A669.
- <sup>2</sup>Oermann CM, Swank PR, Sockrider MM. Validation of an instrument measuring patient satisfaction with chest physical therapy (CPT) techniques in cystic fibrosis. *Pediatric Pulmonol* 1999 (suppl 19): 287, A431.
- <sup>3</sup>Hansen L, Warwick W. High-frequency chest compression system to aid in clearance of mucus from the lung. *Biomed Instrum Technol* 1990; 24: 289-294.
- <sup>4</sup>Kluff J, Beker L, Castagnino M, Gaiser J, Chaney H, Fink R. A comparison of bronchial drainage treatments in cystic fibrosis. *Pediatr Pulmonol* 1996; 22: 271-274.
- <sup>5</sup>Warwick WJ, Hansen LG. The long-term effect of high-frequency chest compression therapy on pulmonary complications of cystic fibrosis. *Pediatr Pulmonol* 1991; 11: 265-271.
- <sup>6</sup>Anbar RD, Powell KN, Iannuzzi DM. Short-term effect of ThAIRapy<sup>®</sup> Vest on pulmonary function of cystic fibrosis patients. *Am J Respir Crit Care Med* 1998; 157(Suppl 3): A130.
- <sup>7</sup>Wen AS, Woo MS, Keens TG. Safety of chest physiotherapy in asthma. *Am J Respir Crit Care Med* 1996; 153(4 pt. 2): A77.
- <sup>8</sup>Castagnino M, Vojtova J, Kaminski S, Fink R. Safety of High Frequency Chest Wall Oscillation in patients with respiratory muscle weakness. *Chest* 1996; 110: S65.
- <sup>9</sup>Arens R, Gozal D, Omlin KJ, Vega J, Boyd KP, Keens TG, Woo MS. Comparison of high-frequency chest compression and conventional chest physiotherapy in hospitalized patients with cystic fibrosis. *Am J Respir Crit Care Med* 1994; 150: 1154-7.
- <sup>10</sup>Rumbak MJ, Marchione VL, Kennedy TC, Rolfe MW. Ninety-day assessment of the effect of High Frequency Chest Wall Oscillation (HFCWO) on exercise tolerance and quality of life of patients with chronic obstructive pulmonary disease. *Chest* 2001; 120:4(Suppl): 250S.
- <sup>11</sup>AV Plioplys, S Lewis, and I Kasnicka. Pulmonary Vest therapy in Pediatric Long-Term Care. *Journal of American Medical Directors Association* 2002; 3: 318-321 Addendum added four patients to original seven. Amplified results of eleven are presented at American Medical Directors Association Conference, March 2003.

**The Vest<sup>®</sup> Airway Clearance System**  
**Breathe a little easier.™**

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Breathe a little easier.™ is a trademark of Hill-Rom Services, PTE, Ltd.  
Enhancing Outcomes for Patients and Their Caregivers.™ is a trademark of Hill-Rom Services, Inc.

The only warranty Hill-Rom, or Advanced Respiratory Inc., makes is the express written warranty extended on the sale or rental of its products.

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