

## VIGOROUS...

### yet comfortable HFCWO Therapy

As patient care teams, RTs, nurses, and physicians strive to speed patients to recovery and safe discharge, ridding lungs of retained secretions on a regular basis is a critical factor in attaining long-term lung health.

The **SmartVest® Airway Clearance System** provides **High Frequency Chest Wall Oscillation (HFCWO)**, also known as **High Frequency Chest Compression (HFCC)**, that delivers a clinically effective airway clearance treatment for numerous diseases and conditions, from post-surgery atelectasis to chronic disease applications.



The **SmartVest®** and **SmartVest Wrap®** provide airway clearance therapy that supports health care teams striving to

- Foster patient recovery in ICU settings
- Maximize convenience of use
- Provide continuity of care from Hospital to Home



**REVERSIBLE!**



#### References

- <sup>1</sup> Chang HK, Weber ME, King M. Mucus transport by high-frequency nonsymmetrical oscillatory airflow. *J Appl Physiol* 1988; 65(3): 1203-1209.
- <sup>2</sup> Majaesic C, Montgomery M, Jones R, King M. Reduction in sputum viscosity using high frequency chest compressions compared to conventional chest physiotherapy. *Pediatr Pulmonol* 1996; Suppl 13: A358.
- <sup>3</sup> Pliophlys AV, Lewis S, Kasnicke I. Pulmonary vest therapy in pediatric long-term care. *Journal of the American Medical Director's Association* 2002 Sep-Oct; 3 (5): 318-321.
- <sup>4</sup> Ohnsorg F. A Cost Analysis of High-Frequency Chest Wall Oscillation in Cystic Fibrosis. *AM J Respir and Crit Care Med* 1994; 149(4): A669.
- <sup>5</sup> Chahal K, Austin G, Chakravorty I. High Frequency Chest Wall Oscillation (HFCWO) in patients with Chronic Obstructive Pulmonary Disease (COPD) and Mucus Hypersecretion. *Proceedings of the American Thoracic Society* May 2008.

Additional references available upon request



*Effective, Convenient, and Comfortable™*

**ELECTROMED, INC.**

*Creating superior care through innovation®*

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Made in USA

#### Additional Readings

- AARC Clinical Practice Guidelines: Postural Drainage Therapy. *Resp Care* 1991; 36(12): 1418-1426.
- Arens R, Gozal D, Omlin K, Vega J, Boyd K, Keens T, Woo M. Comparison of high-frequency chest compression and conventional chest physiotherapy in hospitalized patients with cystic fibrosis. *Am J Respir and Crit Care Med* 1994; 150: 1154-1157.
- Castignino M, Vojtova J, Kaminski S, Fink R. Safety of high-frequency chest wall oscillation in patients with respiratory muscle weakness. *Chest* 1996; 110: S65.
- Warwick W, Hansen L. The long-term effect of high-frequency chest compression therapy on pulmonary complications of cystic fibrosis. *Pediatr Pulmonol* 1991; 11:265-271.

#### Generator Specifications

USA and International voltage compatibility  
Compatible **SmartVest®** and **SmartVest Wrap®** sizes:  
small children to large adults

#### Regulatory Approvals

FDA 510(k) clearance  
ISO 13485/ISO 9001 Certified  
EEC/CE marked  
Licensed in Canada  
Patented and Patents Pending

All warranty information is available at [www.SmartVestWrap.com](http://www.SmartVestWrap.com)



Accredited by  
The Joint Commission

## The Only Airway Clearance System Combining Single-Hose and Soft Start® Technology



*Effective, Convenient,  
and Comfortable™*



THE INNOVATIVE LEADER IN  
**AIRWAY CLEARANCE**

**ELECTROMED, INC.**

Mobile pedestal provides stability and ease of transport, yet requires minimal space

## HOW DOES HFCWO WORK?

HFCWO, administered by the patented **SmartVest®**, creates a revolutionary SQUEEZE and RELEASE action around the chest and torso from 5-20 times per second. The **SmartVest®** inflates and delivers vigorous, yet comfortable, air pulses to the body through a single-hose powered by a programmable air pulse generator. The rapid squeeze and release action simulates repetitive "mini-coughs," which have been reported in the medical literature to effectively

- Shear mucus away from the walls of a lung's airways<sup>1</sup>
- Reduce the viscosity of the secretions<sup>2</sup>
- Propel the mucus toward the larger airways where it can be expectorated or suctioned more easily<sup>1,2</sup>

Today, HFCWO is commonly prescribed and widely practiced. This method is technique-independent and can be administered by the RT, the patient, or another caregiver. Patient and caregiver feedback indicates it is better tolerated than manual Chest Physiotherapy (CPT).

What clinicians like most about the **SmartVest®** and **SmartVest Wrap®**

- Full coverage pulsation
- Convenience
- Ease of operation
- Patient comfort - when patients are able to tolerate HFCWO therapy more comfortably, they are more likely to comply and benefit consistently
- Single-hose design and reversibility of the **SmartVest Wrap®** allow patient access from either side of the bed
- No upward "creep" is experienced - with **Soft Start®** technology the **SmartVest®** inflates gradually, following the contours of the chest
- HomeCare model can be ordered for patients upon discharge
- Reduces clinicians' potential for repetitive motion injuries
- Eliminates concerns associated with manual Chest Physiotherapy (CPT) regarding patient positioning in the Trendelenburg position and technique variance

Benefits of an HFCWO treatment delivered by the **SmartVest®** and **SmartVest Wrap®** include

- Reduction in lung infections, such as pneumonia<sup>3,4,5</sup>
- Reduction in hospital stays<sup>3,4,5</sup>
- Reduction of expensive medications<sup>3,4,5</sup>
- Cost-effectiveness by reducing the secondary complications associated with impaired mucus transport<sup>3,4,5</sup>

Single Patient Use  
**SmartVest Wrap®**



SmartVest Wrap® Sizes Available	
Size	Chest
S-Small	17"-25" (43-64 cm)
Small	25"-30" (64-76 cm)
Medium	30"-36" (76-91 cm)
Large	36"-44" (91-112 cm)
X Large	44"-54" (112-137 cm)
XX Large	54"-66" (137-168 cm)

Single Patient Use  
**SmartVest®**



Single Patient Use SmartVest®		
Size	Chest	
S-Small	16"-20" (41-51 cm)	Child
Small	20"-24" (51-61 cm)	
Medium	24"-30" (61-76 cm)	
Large	30"-36" (76-91 cm)	
Small	36"-40" (91-102 cm)	Adult
Medium	40"-44" (102-112 cm)	
Large	44"-48" (112-122 cm)	
X Large	48"-52" (122-132 cm)	

Single Patient Use  
**Hose**



**SmartVest®**  
Institutional Offerings  
(Hospital and Clinic use)

## APPLICATIONS

HFCWO has been demonstrated to be effective in promoting airway clearance and improving bronchial drainage for a wide variety of medical conditions including

### Mucociliary System Disorders

Cystic Fibrosis, Primary Ciliary Dyskinesia

### Obstructive Pulmonary Conditions

COPD (Chronic Obstructive Pulmonary Disease), Bronchiectasis, Asthma

### Neuromuscular Disease

Muscular Dystrophy, Spinal Muscular Atrophy, ALS (Amyotrophic Lateral Sclerosis)

### Neuromotor Disorders

Cerebral Palsy, Multiple Sclerosis, Spinal Cord Injuries

### Restrictive Airway Disorders

Scoliosis, Kyphoscoliosis

Additional features and services

- Fully supported patient and clinician services
- Toll-free support HELPLINE
- Single Patient Use **SmartVest®** and **SmartVest Wrap®** available in multiple sizes for in-patient use

For more information on the **SmartVest®** Airway Clearance System contact Electromed, Inc. at

**800-462-1045, 952-758-9299**

or

[info@electromed.com](mailto:info@electromed.com)

Please visit our website  
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## **ELECTROMED, INC.**

*Creating superior care through innovation®*

*Electromed, Inc. is committed to continuing a strong program of innovation for the benefit of patients and their caregivers.*

*Electromed, Inc. has been awarded more than twenty patents related to HFCWO technology since 1992.*