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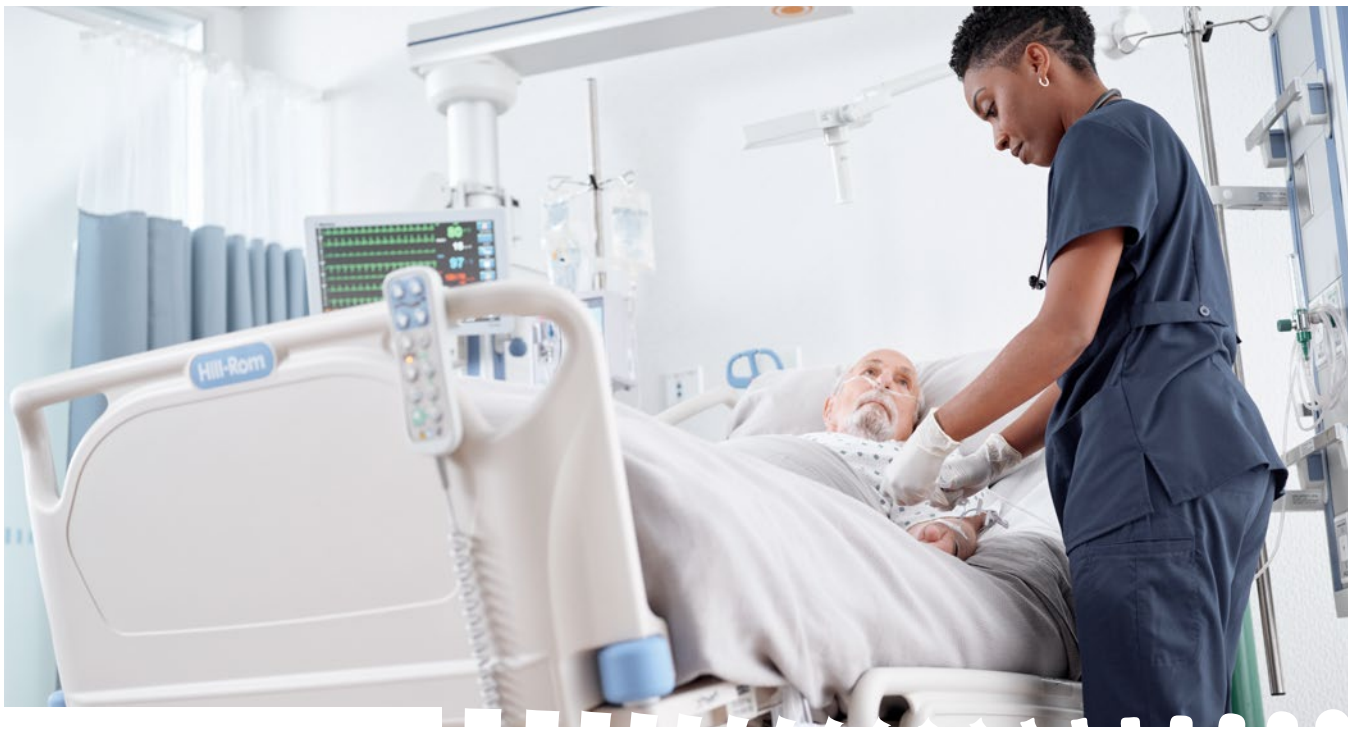
Help Patients Breathe Easier with Percussion & Vibration In-Bed Therapy



The Percussion and Vibration (P & V) features of the mattress work together to mobilize secretions in the lungs so that they can be more easily removed. Percussion involves rapid inflation and deflation of the air bladders located underneath the patient's back so that waves of pressure are imparted to the thorax. These bladders are pulsating the back in a way similar to manual chest percussive therapy (CPT). The frequency of percussion can be varied from one to five pulses or beats per second. This action is believed to loosen the viscous secretions that have adhered to the distal airways and generates short pulses of high velocity airflow that helps carry them to the larger airways.

When air pulse frequency is increased beyond five pulses per second, it is referred to as Vibration therapy. The mechanism by which percussive chest physiotherapy modalities enhance airway clearance is not known.

Clinicians hypothesize that percussion and shaking loosen adherent mucus and biofilms from the airway surface, making it easier for cough clearance to remove them from the airways.[1] Once secretions are released, it is believed that they are then removed by the shear force imparted by greater airflow in the larger airways, and/or by postural drainage.

P & V therapies can be done separately or together as a sequential treatment. These treatments are easily provided by a pulmonary specialty bed with the patient in the supine, side lying, or Trendelenburg positions to facilitate postural drainage or in conjunction with Rotational therapy (CLRT). The therapies can be adjusted for duration, percent of maximum pressure applied, and frequency of the beats delivered. These adjustments may allow patients to begin at a lower level, and titrate to tolerance and/or efficacy.[2]

WHAT ARE THE SIGNS THAT PATIENTS MAY REQUIRE AIRWAY CLEARANCE THERAPY?

The NIH guidelines[3] state that the following are general indications that suggest the need to evaluate a patient for the appropriateness of airway clearance therapy, and these clinical signs and symptoms may be used to guide patient selection.

- Excessive sputum production.
- Reduced effectiveness of cough.
- History of success in treating a pulmonary problem with CPT.
- Adventitious breath sounds suggestive of secretions in the airways which persist after coughing.
- Change in vital signs.
- Abnormal chest radiograph suggesting atelectasis, mucus plugging, or infiltrates.
- Significant deterioration in the indices of gas exchange from baseline status.

Providing timely airway clearance therapy has been shown to reduce the incidence of pulmonary complications,[4] and reduce ICU length of stay and costs of care.[5] Percussion and Vibration therapy can be used as a basic level of airway clearance therapy and has been shown to improve resolution of atelectasis as compared with conventional therapy.[6] It can be combined with continuous lateral rotation therapy (CLRT), which aims to provide postural drainage of secretions that have been mobilized by P & V.

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For more information, please contact your local Hillrom sales representative at 1-800-445-3730.

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[3] Adapted from National Institutes of Health: Critical Care and Respiratory Care Section: [Category: clinical; Section: Bronchial Hygiene; Title: Chest Physiotherapy; Policy#: 01; Revised: 03/00].
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 206804 rev 4 09-JUN-2021 ENG – US