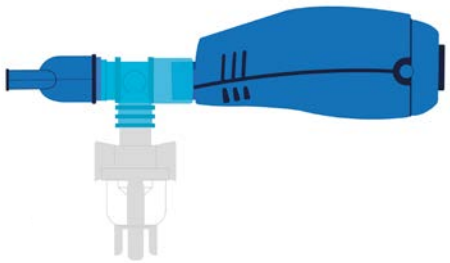
WHITE PAPER

Acapella™ Respiratory Therapy System Nebulizer Placement

This white paper was developed based on a review of the articles referenced below.

The treatment of chronic lung diseases typically includes the use of a nebulizer to deliver medication. Aerosolized drugs can include antibiotics, corticosteroids, and saline, and these medications can help with, among other things, secretion hydration. However, the use of nebulizer can also add time to daily therapies. Therefore, combining a nebulizer with the Acapella respiratory therapy system can reduce the total time of therapy and may help with secretion removal due to hydration[1]. Clinicians now have the option to place the nebulizer between the mouthpiece and the device. Aerosol lung deposition with the placement of the nebulizer in this position has been shown to be similar to a nebulizer alone[2]. This new placement should improve confidence that patients are receiving the appropriate dosage of nebulized medication and still obtaining the benefits of oscillatory PEP.

The Acapella respiratory therapy system combines high-frequency oscillations and PEP into a single treatment. Exhaled air is opposed as it passes through the device, resulting in positive expiratory pressure. Additionally, this expired flow is intermittently occluded by a moving magnetic counterweight, producing air flow oscillations. The use of a magnetic counterweight allows for non-position depended usage of the device and still allows for a patient-specific therapy by adjusting the magnet positioning. There are twenty resistance settings on the Acapella respiratory therapy system, allowing for optimization of frequency, oscillation amplitude, and mean pressure. The Acapella respiratory therapy system family of products (Blue, Green, and Choice) has been shown to reach a range of PEP (3-23 cm H20) and frequency of oscillation (8-21 Hz).[2,3,4,5,6,7]



Proximal placement of nebulizer on the Acapella respiratory therapy system. Items shown above are standard-use for our device and not sold by ICU Medical

References

1. Fink JB. Humidity and aerosol therapy, Cairo JM, Pilbeam SP. Mosby's Respiratory Care Equipment, 8th edition. St Louis: Mosby;2009:150-204
2. Mesquita FO et al. Scintigraphic assessment of radio-aerosol pulmonary deposition with the Acapella positive expiratory pressure device and various nebulizer configurations. Respir Care. 2014;59(3):328-33
3. Alves CE, Nunes LGMQ, Melo PL. Mechanical analysis of an oscillatory positive expiratory pressure device used in respiratory rehabilitation. Conf Proc IEEE Eng Med Biol Soc. 2010;2010:2477-80
4. Silva CEA, Santos JG, Jansen JM, de Melo PL. Laboratory evaluation of the Acapella device: pressure characteristics under different conditions, and a software tool to optimize its practical use. Respir Care 2009;54(11):1480-1487
5. Mueller G et al. Laboratory evaluation of four different devices for secretion mobilization: Acapella Choice, Green, Blue versus water bottle. Respir Care 2014;59(5):673-677
6. Dos Santos AP, Guimaraes RC, de Carvalho EM, Gastaldi AC. Mechanical behaviors of Flutter VRP1, shaker, and Acapella devices. Respir Care 2013 Feb;58(2):298-304
7. Volsko TA, DiFiore J, Chatburn RL. Performance comparison of two oscillating positive expiratory pressure devices: Acapella versus Flutter. Respir Care. 2003 Feb;48(2):124-30

icumedical
human connections

© 2023 ICU Medical Inc. | P23-5873 | Rx Only For safe and proper use, refer to the Instructions for Use.

800.824.7890 | www.icumed.com