



Airway clearance in children with neuromuscular weakness.

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PURPOSE OF REVIEW: Assistance with airway clearance is critical for reducing morbidity and mortality in children with neuromuscular weakness. Several techniques and devices are available to enhance airway clearance in patients with neuromuscular disease. Only recently, however, has assessment of their effectiveness included children. This review highlights the rationale for use of both secretion extraction and mucus mobilization techniques and devices, emphasizing findings in pediatric patients whenever possible.

RECENT FINDINGS: Cough in adults is adequate when peak cough flow exceeds 160 l/min. Similar threshold values in young children have not been established. Those methods that enhance secretion extraction include breath stacking, manual or mechanical insufflation, manually assisted cough, and mechanical insufflation-exsufflation. All are well tolerated in children and can increase peak cough flows, although the greatest increase occurs with mechanical insufflation-exsufflation. Techniques successfully used to help mobilize secretions include high frequency chest wall oscillation and intrapulmonary percussive ventilation. Various modalities can be used successfully alone or in combination.

SUMMARY: Secretion extraction and mobilization techniques are safe, even in infants who require airway clearance assistance. To date, however, criteria specific for children are lacking to determine when such modalities should be used and which ones are most effective.

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