Prevalence studies have shown heterogeneous use of home mechanical ventilation in different conditions, with a marked increase in uptake especially in users of noninvasive ventilation. Although randomized controlled trials have examined noninvasive ventilation in acute exacerbations of chronic obstructive pulmonary disease, for weaning from invasive ventilation and for postextubation respiratory failure, the evidence base for long-term noninvasive ventilation and comparisons with invasive ventilation are less well developed. The combination of noninvasive ventilation and cough-assist devices has reduced the indications for tracheotomy ventilation in some situations (e.g., Duchenne muscular dystrophy, spinal muscular atrophy, myopathies, and amyotrophic lateral sclerosis) and has also prolonged survival. Several excellent overviews have been written on the history of home mechanical ventilation and its evolution from negative pressure to positive pressure techniques, including a systematic review of outcomes. This review, instead, will cover recent trials, trends in the field, outcomes, and safety. Because the greatest growth has been in home noninvasive ventilation, this will be the main focus of this article.

**KEYWORDS:** chronic obstructive pulmonary disease; chronic respiratory failure; neuromuscular disorders; noninvasive ventilation; obesity hypoventilation syndrome