Key Messages

Purpose of review

To evaluate home noninvasive positive pressure ventilation (NIPPV) in adults with chronic respiratory failure in terms of initiation, continuation, effectiveness, adverse events, equipment parameters and required respiratory services. Devices evaluated were home mechanical ventilators (HMV), bi-level positive airway pressure (BPAP) devices, and continuous positive airway pressure (CPAP) devices.

Key messages

- In patients with COPD, home NIPPV as delivered by a BPAP device (compared to no device) was associated with lower mortality, intubations, hospital admissions, but no change in quality of life (low to moderate SOE). NIPPV as delivered by a HMV device (compared individually with BPAP, CPAP, or no device) was associated with fewer hospital admissions (low SOE). In patients with thoracic restrictive diseases, HMV (compared to no device) was associated with lower mortality (low SOE). In patients with neuromuscular diseases, home BPAP (compared to no device) was associated with lower mortality and better quality of life (low SOE). In patients with obesity hypoventilation syndrome, HMV/BPAP mix (compared to no device) was associated with lower mortality (low SOE). BPAP (compared to no device) was associated with improved sleep quality.
- Current evidence is insufficient to assess the comparative effectiveness of many NIPPV device capabilities on patient outcomes; particularly comparing HMV to BPAP. Future studies should address which device capabilities are associated with improved patient outcomes.
- Criteria to initiate home NIPPV and home respiratory services were summarized in this report but varied and were not validated in comparative studies.
- Incidence of non-serious adverse events such as facial rash, dry eyes, mucosal dryness, and mask discomfort across devices was approximately 0.3 events over a median duration of device used of 6 months. The most commonly reported serious adverse event was acute respiratory failure. Based on direct comparisons, we found no statistically significant differences in number of treatment withdrawals or adverse events when comparing different devices or when comparing device use with no device use.