



## Medical care & clinical practice

# Prevention of Bronchopulmonary Dysplasia (BPD)

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### Statement of the standard

Bronchopulmonary Dysplasia (BPD) is prevented using evidence-based strategies including avoiding mechanical ventilation, minimally invasive administration of exogenous surfactant, volume targeted ventilation and early caffeine, and administration of systemic steroids in infants still requiring ventilation during their 2nd postnatal week.



### For parents and family

- Parents are informed by healthcare professionals about Bronchopulmonary Dysplasia (BPD) and strategies to minimise its risk.



### For healthcare professionals

- A unit guideline on the management and prevention BPD is adhered to by all healthcare professionals, and includes the following advice:
  - Surfactant is administered via a thin intra-tracheal catheter if FiO<sub>2</sub> is >0.30 or using INSURE (intubate surfactant extubate).
  - Volume targeted ventilation (at 5-7 ml/kg) is used plus adequate PEEP level, if intubation cannot be avoided.
  - Infants on n-CPAP are switched to synchronised nasal ventilation if respiratory distress visible while on CPAP.
  - Caffeine is administered from day 1-2 after birth (10 mg/kg loading, 5 mg/kg/d maintenance for caffeine base).
  - Vitamin A is considered (5000 IE i.m. three times/week for week 1-4 after birth).
  - If mechanical ventilation is still necessary during postnatal week 2, postnatal steroid use is considered (dexamethasone at the lowest effective dose possible).
  - Efforts to reduce rates of nosocomial infection, as a risk factor for BPD, are made.
- Training on the management and prevention of BPD is attended by all responsible healthcare professionals.

### Benefits

Short-term benefits:

- Reduced risk of BPD by avoiding invasive mechanical ventilation (risk ratio (RR), 0.91; 95% Confidence Interval 0.84-0.99)
- Reduced risk of BPD by use of minimally invasive surfactant administration (RR 0.75; 0.59-0.94)
- Reduced risk of BPD by use of volume targeted ventilation (as opposed to pressure targeting) (RR 0.61; 0.46-0.82)
- Reduced risk of BPD by starting caffeine on postnatal day one or two instead of later (RR 0.51; 0.40-0.64)
- Reduced risk of BPD by administration of vitamin A intramuscularly for the first four postnatal weeks (RR 0.87; 0.77-0.98)
- Reduced rate of death or BPD by administration of systemic steroids in ventilated infants (RR 0.72; 0.63-0.82) without increasing the risks of cerebral palsy

Long-term benefits:

- Reduced adverse neurodevelopmental outcome if BPD can be prevented



### For neonatal unit

- A unit guideline on prevention and management of BPD is available and regularly updated.



### For hospital

- Training on management and prevention of BPD is ensured.
- Institutional BPD rates are monitored together with length of hospital stay and use of supplemental oxygen.



### For health service

- A national guideline on management and prevention of BPD is available and regularly updated.

