

MANAGEMENT OF BRONCHOPULMONARY DYSPLASIA

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Definition

- ✦ A syndrome characterized by the triad of:
 - ✦ oxygen dependence
 - ✦ radiographic abnormalities
 - ✦ respiratory symptoms persist beyond 28 days of life in infant with RDS at birth

Bronchopulmonary Dysplasia

- ✗ Most common severe complication of prematurity
- ✗ First defined by Northway in 1967: lung disease resulting from prolonged mechanical ventilation in premature infants with surfactant deficiency
- ✗ NICHD criteria in 2001: need for oxygen based on GA and severity of disease

	Gestational age	
	<32 week	≥32 week
Time point of assessment	36 weeks PMA or discharge to home, whichever comes first	>28 days but <56 days postnatal age or discharge to home, whichever comes first
	Treatment with oxygen >21 percent for at least 28 days plus	
Mild BPD	Breathing room air at 36 weeks PMA or discharge, whichever comes first	Breathing room air by 56 days postnatal age or discharge, whichever comes first
Moderate BPD	Need* for <30 percent oxygen at 36 weeks PMA or discharge, whichever comes first	Need* for <30 percent oxygen at 56 days postnatal age or discharge, whichever comes first
Severe BPD	Need* for ≥30 percent oxygen and/or positive pressure (PPV or NCPAP) at 36 weeks PMA or discharge, whichever comes first	Need* for ≥30 percent oxygen and/or positive pressure (PPV or NCPAP) at 56 days postnatal age or discharge, whichever comes first

Epidemiology

Incidence:

- ✦ 42-46% (BW-501-750g)
- ✦ 25-33% (BW=751-1000g)
- ✦ 11-14% (BW=1001-1250g)
- ✦ 5-6% (BW=1251-1500g)

Pathophysiology

- × Old BPD:
 - × Airway injury, inflammation and parenchymal fibrosis due to mechanical ventilation and oxygen toxicity

- × New BPD:
 - × Decreased septation and alveolar hypoplasia leading to fewer and larger alveoli, so less surface area for gas exchange
 - × Dysregulation of vascular development leading to abnormal distribution of alveolar capillaries and thickened muscular layer of pulmonary arterioles