

# 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
	<b>Treatment with oxygen &gt;21 percent for at least 28 days plus</b>	
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