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

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