HEATED HIGH FLOW (HHF)

**Prior to HHF initiation:**
- Obtain respiratory score (RS), suction, repeat RS

**Was RS moderate or severe?**
- Moderate
  - **Initiate HHF at flow rate of 2L/kg/min (max 15L/min and ≥ 30% \( \text{FiO}_2 \))**
  - **Call Provider for order**
  - Obtain RS, suction, repeat RS + VS per provider order
  - Place PIV (consider NS bolus/IVF)
  - Order NPO status
  - **Provider disposition assessment at 1 hour**

  - 2 providers together at bedside (within 30 min) may be required should differing opinions on disposition occur

**Severe**

**Manage off pathway**
- Notify PICU and arrange for potential transfer of patient

**Was HIP successful?**
- Yes
  - Manage off pathway

**No**

**Inclusion Criteria:**
- Age 40 weeks post-conceptual age to < 2 years
- Any of the following:
  - Respiratory distress
  - Hypoxemia (need for >1L if 30-90 days old, >1.5L 91 days to 6 months old, >2L for 6 months to 2 years old)
  - RS score ≥5

**Exclusion Criteria (If using HHF, manage off pathway):**
- Cardiac disease
- Anatomic airway defects
- Neuromuscular disease
- Immunodeficiency

**Signs of clinical improvement:**
- Lower respiratory rate (not inappropriately low for age)
- Lower heart rate
- Improving RS

**Weaning HHF**
- On admission, provider may attempt pause or attempt a 1 hour holiday every 12 hours
- \( \text{FiO}_2 \) should be weaned by RN/RT to maintain saturations ≥ 90%
- Flow rate should be weaned quickly for improving patients, including at night

  **RT/RN to wean flow rate by at least 1L every 2 hours as long as patient is:**
  - Clinically improving (respiratory distress, respiratory rate, RS)
  - Requiring less than 30% \( \text{FiO}_2 \)
  - Place LFNC if needed to keep saturations ≥ 88%
  - Weaning by conducting a trial directly off HHF to room air (from any rate) is also possible as patient’s condition allows and notifying ordering provider
  - When flow is stable at 2L for 2 hours, discontinue HHF

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HEATED HIGH FLOW (HHF)

**Criteria to transfer to the ICU:**
- Clinical worsening on HHF trial
- Recurring apnea > 20 seconds requiring intervention
- Recurring desaturations with increased FiO₂ needs of >60% FiO₂
- Altered mental status (irritability, lethargy)
- Poor perfusion, cool extremities, capillary refill > 3 seconds

**Criteria for transfer from ICU to floor**
- Meets pathway criteria, stable on flow rate at 80% of floor maximum for ≥ 4 hours AND RS < 8 prior to transfer

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### Respiratory Score

Children’s Hospital & Medical Center wishes to acknowledge the work of Dr. Russ Migita and Dr. Lynda Ken of Seattle Children’s Hospital in the development of this pathway/tool.

<table>
<thead>
<tr>
<th>Variable</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>3 points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESPIRATORY RATE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 2 months</td>
<td>≤ 60</td>
<td>61 - 69</td>
<td>≥ 70</td>
<td></td>
</tr>
<tr>
<td>2 - 12 months</td>
<td>≤ 50</td>
<td>51 - 59</td>
<td>≥ 60</td>
<td></td>
</tr>
<tr>
<td>1 - 2 years</td>
<td>≤ 40</td>
<td>41 - 44</td>
<td>≥ 45</td>
<td></td>
</tr>
<tr>
<td>2 - 3 years</td>
<td>≤ 34</td>
<td>35 - 39</td>
<td>≥ 40</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>RETRACIONS</strong></th>
<th>None</th>
<th>Subcostal or intercostal</th>
<th>2 of the following: - Subcostal - Intercostal - Subternal - Nasal flaring (infant)</th>
<th>3 of the following: - subcostal - intercostal - Subternal - Supraclavicular - Nasal flaring or head bobbing (infant)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>DYSPNEA</strong></th>
<th>Normal feeding, vocalizations, and activity</th>
<th>1 of the following: - Difficulty feeding - Decreased vocalization - Agitated</th>
<th>2 of the following: - Difficulty feeding - Decreased vocalization - Agitated</th>
<th>- Stops feeding OR - No vocalizations OR - Drowsy or confused</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 2 years</td>
<td>Normal feeding, vocalizations, and activity</td>
<td>1 of the following: - Decreased appetite - Increased coughing after play - Hyperactivity</td>
<td>2 of the following: - Decreased appetite - Increased coughing after play - Hyperactivity</td>
<td>- Stops eating or drinking OR - Stops playing OR - Drowsy or confused</td>
</tr>
<tr>
<td>2 - 4 years</td>
<td>Normal feeding, vocalizations, and play</td>
<td>1 of the following: - Difficulty feeding - Decreased vocalization - Agitated</td>
<td>2 of the following: - Difficulty feeding - Decreased vocalization - Agitated</td>
<td>- Stops feeding OR - No vocalizations OR - Drowsy or confused</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th><strong>AUSCULTATION</strong></th>
<th>Normal breathing, no wheezing present</th>
<th>End-expiratory wheeze only</th>
<th>Expiratory wheeze only (greater than end-expiratory wheeze)</th>
<th>Inspiratory and expiratory wheeze OR Diminished breath sounds OR Both</th>
</tr>
</thead>
</table>

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ChildrensOmaha.org/Pathways
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