**Patient disposition should NOT be based on HFNC settings (i.e., FiO\textsubscript{2} flow). Patient disposition should be determined by the overall clinical condition, which is mainly defined by CRS. See next page for additional guidance.**
The following are general admission/exclusion criteria for acute care areas and are not exclusive to this protocol. These are provided to assist and offer **general guidance** on patient disposition and are **not** meant to be **all-inclusive**. **Patient needs and status** will ultimately **determine disposition** and will be based on discussion amongst the multidisciplinary providers (i.e., RT, physician, nurse).

<table>
<thead>
<tr>
<th>Division</th>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
</table>
| **MC Acute Care** | o CRS 0-5 at time of disposition and/or transfer, *if stable or improving on allowable max. therapies* | o **Patient is not** stable or improving on allowable max. therapies  
 o Patient requiring continuous albuterol therapy  
 o CPAP or BiPAP use for patients with acute respiratory disease |
| **MC Respiratory Unit (Abercrombie 6N)** | o Patient requiring continuous albuterol therapy  
 o CRS <8 at time of disposition and/or transfer, *if stable or improving on allowable max. therapies* | o CPAP or BiPAP use for patients with acute respiratory disease  
 o Need for *additional* magnesium doses or terbutaline infusion |
| **WC Acute Care** | o Patient requiring continuous albuterol therapy  
 o CRS <8 at time of disposition and/or transfer, *if stable or improving on allowable max. therapies* | o **Patient is not** stable or improving on allowable max. therapies  
 o CPAP or BiPAP use for patients with acute or chronic respiratory disease |
| **Woodlands Acute Care** | o Patient requiring continuous albuterol therapy  
 o CRS 0-5 at time of disposition and/or transfer, *if stable or improving on allowable max. therapies* | o **Patient is not** stable or improving on allowable max. therapies  
 o CPAP or BiPAP use for patients with acute respiratory disease |
Critical Points of Evidence

Evidence Supports

- Use HFNC therapy in children experiencing respiratory distress. Use the maximum flow rate for the patient’s appropriate cannula size. (1-12) – Strong recommendation, low quality evidence
- Identify nonresponders as patients exhibiting no response (e.g., HR, RR) within 1 hour of therapy. (13-16) – Strong recommendation, low quality evidence
  The clinical respiratory score (CRS) used at TCH includes respiratory rate, among other markers. Patients with a significant cardiopulmonary disorder may have a higher HFNC therapy failure rate than the general population.

Evidence Lacking/Inconclusive

- Utilize the oxygen weaning protocol for HFNC therapy weaning. – Consensus recommendation
References


Clinical Standards Preparation

This clinical standard was prepared by the Evidence-Based Outcomes Center (EBOC) team in collaboration with content experts at Texas Children’s Hospital. Development of this clinical standard supports the TCH Quality and Patient Safety Program initiative to promote clinical standards and outcomes that build a culture of quality and safety within the organization.

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Development Process

This clinical standard was developed using the process outlined in the EBOC Manual. The literature appraisal documents the following steps:
1. Review Preparation
   - PICO questions established
   - Evidence search confirmed with content experts
2. Review of Existing Internal and External Guidelines
   - N/A
3. Literature Review of Relevant Evidence
   - Searched: Cochrane, PubMed, Google
4. Critically Analyze the Evidence
   - 1 randomized controlled trial and 14 nonrandomized studies
5. Summarize the Evidence
   - Materials used in the development of the clinical standard, literature appraisal, and any order sets are maintained in a HFNC Therapy evidence-based review manual within EBOC.

Evaluating the Quality of the Evidence

Published clinical guidelines were evaluated for this review using the AGREE II criteria. The summary of these guidelines are included in the literature appraisal. AGREE II criteria evaluate Guideline Scope and Purpose, Stakeholder Involvement, Rigor of Development, Clarity and Presentation, Applicability, and Editorial Independence using a 4-point Likert scale. The higher the score, the more comprehensive the guideline.

This clinical standard specifically summarizes the evidence in support of or against specific interventions and identifies where evidence is lacking/inconclusive. The following categories describe how research findings provide support for treatment interventions.

“Evidence Supports” provides evidence to support an intervention.
“Evidence Against!” provides evidence against an intervention.
“Evidence Lacking/Inconclusive” indicates there is insufficient evidence to support or refute an intervention and no conclusion can be drawn from the evidence.

The GRADE criteria were utilized to evaluate the body of evidence used to make practice recommendations. The table below defines how the quality of the evidence is rated and how a strong versus weak recommendation is established. The literature appraisal reflects the critical points of evidence.

<table>
<thead>
<tr>
<th>Quality</th>
<th>Type of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Evidence from well-performed RCTs or exceptionally strong evidence from unbiased observational studies</td>
</tr>
<tr>
<td>Moderate</td>
<td>Evidence from RCTs with important limitations (e.g., inconsistent results, methodological flaws, indirect evidence, or imprecise results) or unusually strong evidence from unbiased observational studies</td>
</tr>
<tr>
<td>Low</td>
<td>Evidence for at least 1 critical outcome from observational studies, RCTs with serious flaws or indirect evidence</td>
</tr>
<tr>
<td>Very Low</td>
<td>Evidence for at least 1 critical outcome from unsystematic clinical observations or very indirect evidence</td>
</tr>
</tbody>
</table>

Recommendations

Practice recommendations were directed by the existing evidence and consensus amongst the content experts. Patient and family preferences were included when possible. The Content Expert Team and EBOC team remain aware of the controversies in the initiation and escalation of HFNC therapy in children. When evidence is lacking, options in care are provided in the clinical standard and the accompanying order sets (if applicable).

Approval Process

Clinical standards are reviewed and approved by hospital committees as deemed appropriate for its intended use. Clinical standards are reviewed as necessary within EBOC at Texas Children’s Hospital. Content Expert Teams are involved with every review and update.

Disclaimer

Practice recommendations are based upon the evidence available at the time the clinical standard was developed. Clinical standards (guidelines, summaries, or pathways) do not set out the standard of care and are not intended to be used to dictate a course of care. Each physician/practitioner must use his or her independent judgment in the management of any specific patient and is responsible, in consultation with the patient and/or the patient’s family, to make the ultimate judgment regarding care.

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DATE: September 2016
<table>
<thead>
<tr>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 2016</td>
<td>Originally completed</td>
</tr>
<tr>
<td>Jan 2018</td>
<td>Changed CRS cutoff for HFNC therapy, removed hypertonic saline, and added Woodlands Acute Care to the table on p. 2</td>
</tr>
</tbody>
</table>