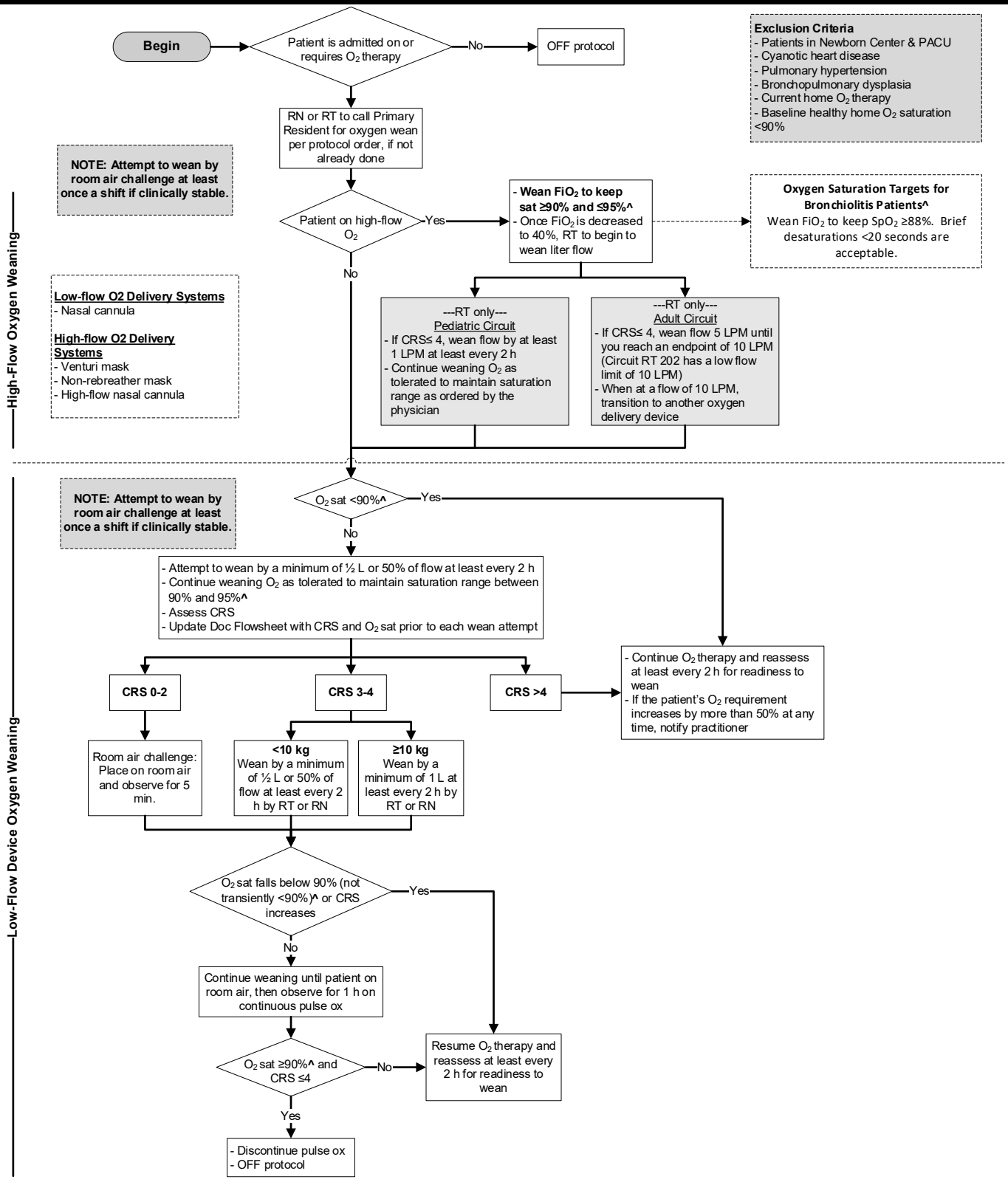
Texas Children's Hospital

TEXAS CHILDREN'S HOSPITAL
EVIDENCE-BASED OUTCOMES CENTER
Oxygen Weaning Protocol
Evidence-Informed Pathway



Clinical standards are developed for 80% of the patient population with a particular disease. Each practitioner must use his/her clinical judgment in the management of any specific patient.

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Critical Points of Evidence*

Evidence Supports

- Wean oxygen by ½ L or 50% of flow in patients <10 kg and by 1 L in patients ≥10 kg. Attempt to wean at least every 2 hours. Attempt to wean by room air challenge at least once a shift if clinically stable. [1-17] – Strong recommendation, very low-quality evidence

Evidence Lacking/Inconclusive

- There is no definitive recommendation whether pulse oximeters systematically overestimate oxygen saturation in patients with darker skin tones and the impact on clinical outcomes. [18-25] – Evidence Lacking (Recommendation adopted from TCH Bronchiolitis Guideline)
  Remarks: Recent studies concluded that overestimation of saturation by pulse oximetry may be associated with darker skin tones[24]; however, there is a paucity of pediatric evidence on the clinical impact of this occurrence. The studies reviewed for this topic have significant limitations due to the methodological procedures. There is ongoing research at Texas Children's Hospital to explore this topic. Guidelines will be updated as new research is published.

*NOTE: The references cited represent the entire body of evidence reviewed to make each recommendation.

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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 External Guidelines
   - World Health Organization, Oxygen Therapy for Children (2016); Children's Hospital of Philadelphia, Inpatient Clinical Pathway for Evaluation/Treatment of Infants with Bronchiolitis (2025); Seattle Children's Hospital, Bronchiolitis (2026); Johns Hopkins All Children's Hospital, Bronchiolitis and High Flow Nasal Cannula Pathway (2024)
3. Literature Review of Relevant Evidence
   - Searched: Cochrane, PubMed
4. Critically Analyze the Evidence
   - 11 nonrandomized studies
5. Summarize the Evidence
   - Materials used in the development of the clinical standard, literature appraisal, and any order sets are maintained in an oxygen weaning 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.

Recommendation	
STRONG	Desirable effects clearly outweigh undesirable effects or vice versa
WEAK	Desirable effects closely balanced with undesirable effects
Quality	**Type of Evidence**
High	Consistent evidence from well-performed RCTs or exceptionally strong evidence from unbiased observational studies
Moderate	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
Low	Evidence for at least 1 critical outcome from observational studies, RCTs with serious flaws or indirect evidence
Very Low	Evidence for at least 1 critical outcome from unsystematic clinical observations or very indirect evidence

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 weaning of oxygen 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 should 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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Version History

Date	Comments
Feb 2017	Modified the inclusion/exclusion criteria
July 2018	Updated
April 2021	Revised and Reaffirmed
July 2025	Adopted recommendation from the Bronchiolitis Guideline on pulse oximetry accuracy added.
Dec 2025	Revisions for SpO2 Targets for Bronchiolitis Patients
June 2026	Pathway Update
Oct 2026	Oxygen Saturation Targets for Bronchiolitis Patients Revised

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