



## BEST PRACTICE GUIDANCE FOR INFANT CPAP

### A South London and South East of England approach

#### Introduction:

This guideline has been created to support clinical colleagues in South Thames Paediatric Network (STPN) with the use of Non-invasive Continuous Positive Airway Pressure (CPAP) for Children under 1 year within acute paediatric admissions. This excludes the use of CPAP within Neonatal units who will use equipment and approaches familiar and appropriate to their clinical environment and practice.

The guideline is designed to allow for rapid recognition of a child that would benefit from CPAP and provide succinct information as to the best practice for commencing therapy in a child experiencing acute respiratory distress. It does not replace the clinical knowledge, expertise and judgement of clinicians at the bedside. The guideline does not describe the use of Non-invasive ventilation (NIV) beyond CPAP although clinical units with the skills and ability to provide care beyond CPAP should use local guidance.

#### The contents for the Guideline are as follows:

Main document: Best Practice guidance for Infant CPAP

All appendices can be accessed on this link:

Appendix A: Team Screen

Appendix B: Set up guides and resources

Appendix C: Patient transfer

Appendix D: Adaptable Interface selection material for infants and toddlers only

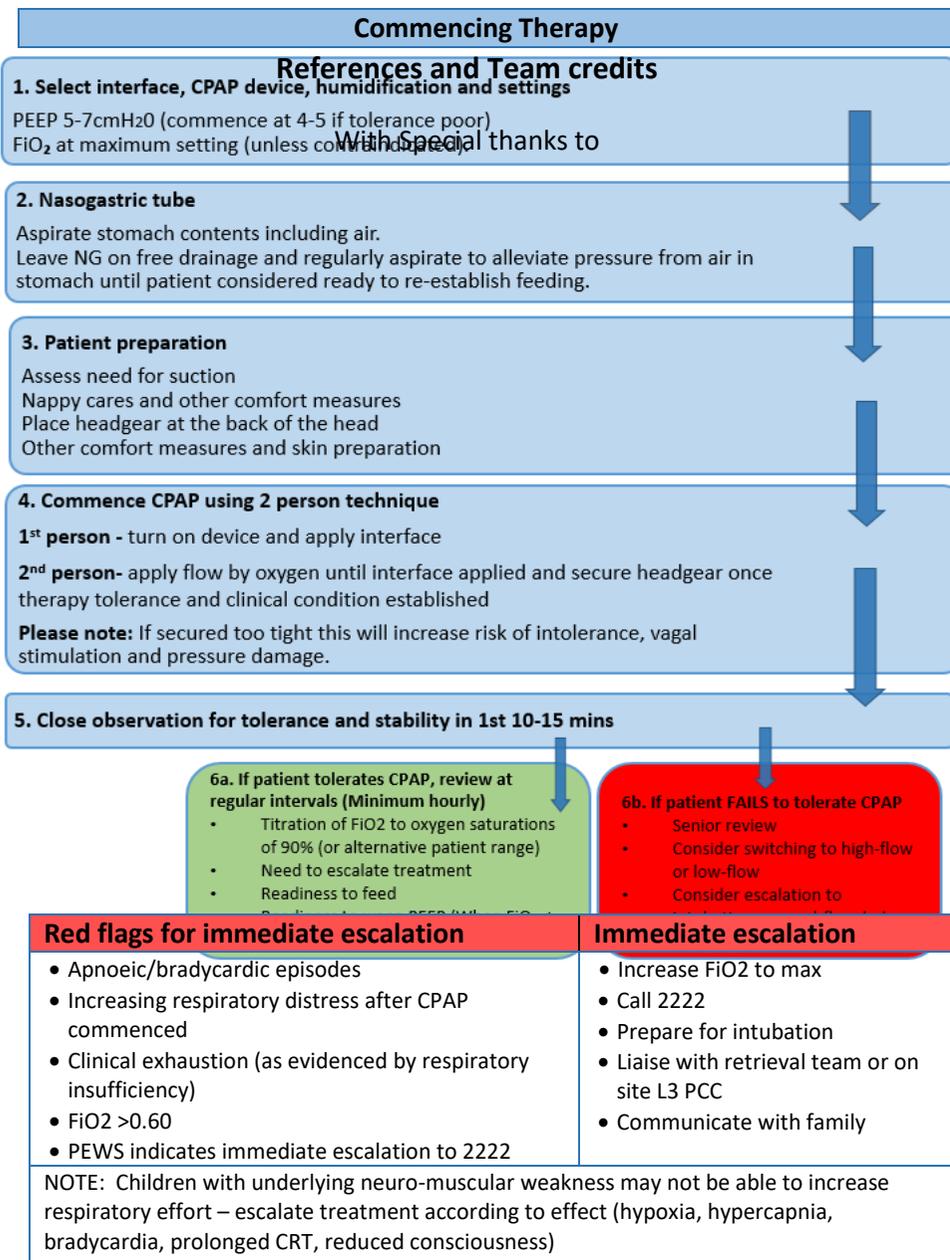
Appendix E: Adaptable Interface selection material for all ages

#### Change History:

Date	Change details, since approval:	Approved by:	Document Version:
21/10/2021		Clinical Director STPN Marilyn McDougall	1.0

## Non-invasive CPAP in children under 1 year – South Thames Paediatric Network

Patient and therapy selection	
<p><b>Choosing CPAP or HHHFT-</b> CPAP delivers better PEEP but high-flow is often better tolerated. This decision should hence be made by senior clinical team with consideration of underlying condition, time to set up therapy, equipment availability, skill availability and patient tolerance to therapy.</p>	
<p><b>Indications</b></p> <ul style="list-style-type: none"> <li>Moderate to severe respiratory distress despite first line respiratory support methods (Oxygen, positioning, suction and ECCs)</li> <li>Unresponsive to HHHFT</li> <li>Hypoxia (Sats &lt; 90%) despite oxygen therapy (Type 1 respiratory failure)</li> <li>Respiratory acidosis (Type 2 respiratory failure), although repeated blood gases not advised.</li> </ul> <p><b>NB:</b> CPAP can be commenced for respiratory acidosis at pH &lt; 7.3 if parallel clinical assessment signifies a need. Favourable outcomes have been seen if CPAP is commenced at pH 7.25, although clinicians should be aware of <u>potentially higher rates of CPAP failure if intervention is delayed.</u></p>	<p><b>Contra-indications</b></p> <ul style="list-style-type: none"> <li>Recurrent or prolonged apnoea</li> <li>Respiratory arrest or peri-arrest state</li> <li>Severe cardiovascular instability</li> <li>Upper airway obstruction</li> <li>Inability to protect the airway</li> <li>Undrained pneumothorax/pneumomediastinum</li> <li>Craniofacial abnormalities</li> <li>Trauma/Surgery to nasopharynx</li> <li>Continuous vomiting</li> </ul> <p><b>Cautions</b></p> <ul style="list-style-type: none"> <li>Abdominal distention</li> <li>Recent abdominal surgery</li> <li>Previous Vomiting</li> </ul>
Patient and equipment management	
<p><b>Essential Care considerations (ECCs) – ECC's should be reviewed prior to and during therapy.</b></p>	
<ul style="list-style-type: none"> <li>Optimised positioning (e.g. head elevation)</li> <li>Optimise comfort (swaddling, dummy if used, nappy cares, parental contact/skin to skin)</li> <li>Consider referral for physiotherapy assessment</li> <li>Secretion clearance if indicated and safe to do so</li> <li>Consider feeding regime alteration according to risk and underlying disease:</li> </ul> <p><b>Severe respiratory distress-</b> NBM with IV fluids</p> <p><b>Moderate respiratory distress-</b> assess prior to feeding and proceed with caution</p>	<ul style="list-style-type: none"> <li>Psychosocial support for family</li> <li>Minimal handling/cluster cares</li> <li>Blood gas analysis not essential and acidosis a late sign of failure.</li> <li>Chest x-ray for all children starting CPAP</li> <li>Onsite anaesthetic to be aware of patient in case of need for step up intervention (unless local policy does not indicate)</li> <li>Essential to support breastfeeding mothers</li> </ul>
Monitoring and Nursing care	Equipment
<ul style="list-style-type: none"> <li>Nurse on 1:2 ratio (1:3 with 2 ward level patients)</li> <li>Presence of red flags will require Nursing ratio of 1:1 until resolved</li> <li>Continuous oxygen saturations</li> <li>Observation frequency and escalation according to PEWS</li> <li>Min hourly observations and escalation according to PEWS</li> </ul>	<ul style="list-style-type: none"> <li>Paediatric arrest trolley easily accessible</li> <li>Bag Valve Mask at bedside</li> <li>Piped Medical Gases and suction</li> <li>Ideally Centrally monitored if possible</li> </ul>
Patient transfer	
<p><b>Intra- Hospital Transfers</b> - avoid where possible until a period of stability maintained without CPAP- <b>Appendix C</b></p> <p><b>Inter-Hospital transfer Should be discussed with STRS.</b></p>	
<p><b>Sedation use:</b> The use of sedation for patients on CPAP should not be routine or considered prior to all comfort measures. Consultant with experience in the use of low dose sedation for CPAP should do so only with consideration of the patient risks. Clinicians without experience should proceed only with advice from STRS.</p>	



## Non-invasive CPAP in children under 1 year – South Thames Paediatric Network

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<b>Clinical Director review and Endorsement of South Thames Paediatric Network Infant CPAP guideline</b>		
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### References

James et al (2011) Predicting the success of non-invasive ventilation in preventing intubation and re-intubation in the paediatric intensive care unit. *Intensive Care Med* (2011) 37:1994–2001

Jat & Mathew (2019) Continuous positive airway pressure (CPAP) for acute bronchiolitis in children. *Cochrane Database of Systematic Reviews*. Jan 31;(1):CD010473

Pons-Òdenaa et al (2019) What are the most reliable predictive factors of non-invasive ventilation failure in paediatric intensive care units? *An Pediatr (Barc)*;91:307–316.

With thanks to North Thames Paediatric Network and East of England Paediatric Network and The affiliated Acute trusts to those within the team credits for sharing their current guidelines for reference.