



# Ventilation Management of Preterm Infants

<32 Weeks in the Delivery Room



**Children's Hospital  
of Philadelphia®**

Division of Neonatology

# Management of Preterm infants <32 weeks in the Delivery Room

Date: January 12, 2021

Review Date:

Contact author: Jennifer Cohen

Contributing authors: El Noh, Melissa Schmatz, Stephanie Ardell, Jennifer Hesler, John Chuo, Sarvin Ghavam, Olena Kucheruk, Kristen Nelson

## Consensus statement and Clinical Recommendations

- These recommendations refer specifically to the immediate resuscitation period after delivery, in the first 10 minutes of life
- These recommendations apply to infants <32 weeks
- ECG monitoring as soon after birth as possible is recommended
- T piece resuscitator for initial resuscitation is recommended over other ventilation devices

### Oxygen Saturation Targeting:

(Follow NRP standards for oxygen saturation targeting goals 7<sup>th</sup> Ed)

1 minute	60-65%
2 minutes	65-70%
3 minutes	70-75%
4 minutes	75-80%
5 minutes	80-85%
10 minutes	85-95%

1. Pulse oximeter is placed on a preductal location on the right upper extremity, usually wrist or palm, as soon as possible.
2. Oxygen concentration is started at 21-30%. The oxygen concentration should be adjusted to achieve the targeted SpO<sub>2</sub> levels, monitored by the pulse oximeter.
3. If chest compressions are initiated, oxygen concentration is increased to 100% and weaned rapidly when the heart rate recovers and compressions are no longer needed.
4. Oxygen concentrations are adjusted to maintain saturations that match recommended range for each minute after birth.

### Respiratory support:

1. Non-invasive respiratory support is the first line therapy for all spontaneously breathing infants <32 weeks.
2. HR assessment is critical and ECG monitoring is recommended.
3. Immediately initiate CPAP 5cm H<sub>2</sub>O and titrate (max 8-10cm H<sub>2</sub>O) to reduce work of breathing and O<sub>2</sub> requirement

4. If PPV is required, gentle ventilation is provided with initial PIP 20cm H<sub>2</sub>O, with increase to 25-30cm H<sub>2</sub>O as needed.
5. Avoid using RAM cannula for initial resuscitation; nasal CPAP or facial CPAP is recommended

***Intubation and surfactant administration:***

1. Intubation criteria:
  - a. Persistent apnea at 5 minutes of life
  - b. Bradycardia <100 despite optimal CPAP/PPV support
  - c. Note: FiO<sub>2</sub> requirement in the DR/OR should NOT be a primary indicator for intubation/surfactant administration
2. Check ET tube placement with auscultation, colorimetric CO<sub>2</sub> detector, and/or chest x-ray
3. Surfactant administration per institutional guidelines/practices  
Note: ETT should not be suctioned for 2 hours following surfactant administration unless signs of significant airway obstruction

©2024 by Children's Hospital of Philadelphia, all rights reserved.  
Use of this site is subject to the [Terms of Use](#).

The Neonatology Consensus Statements ("Statements") are based on a consensus of medical practitioners at The Children's Hospital of Philadelphia ("CHOP") and are current at the time of publication. These Statements are intended to be a guide for practitioners and may need to be adapted for each specific patient based on the practitioner's professional judgment, consideration of any unique circumstances, the needs of each patient and their family, and/or the availability of various resources at the health care institution where the patient is located.

Accordingly, these Statements are not intended to constitute medical advice or treatment, or to create a doctor-patient relationship between/among CHOP, its physicians and the individual patients in question. CHOP does not represent or warrant that the Statements are in every respect accurate or complete, or that one or more of them apply to a particular patient or medical condition. CHOP is not responsible for any errors or omissions in the Statements, or for any outcomes a patient might experience where a clinician consulted one or more such Statements in connection with providing care for that patient.

If you use a printed version of a Statement, please ensure that you are using the most current version.