

## Delivery Room Bubble CPAP Optimizing Respiratory Support in the Very Low Birthweight Infant

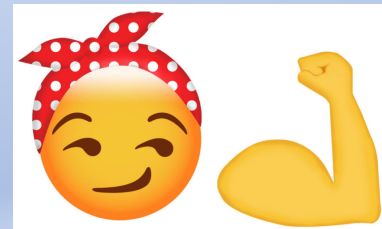


Dorothy Hutchinson, MSN, CNS  
Michelle Thomas, SNIV, ALS RN  
Paula Daugherty, MPH, RRT-NPS

### Objectives

At the end of this interactive lecture session, participants will be able to:

- Discuss recommendations for optimizing respiratory support for VLBW infants in the delivery room
- Discuss team member composition and dynamics in the delivery room
- Describe useful techniques and procedures to consider when implementing practice changes in the delivery room



*“Stabilization in the delivery room with prompt respiratory and thermal management is crucial to the immediate and long-term outcome of premature infants, particularly extremely premature infants.”*

## What does this look like??

In January 2014 the AAP released a policy statement on respiratory support for newborn preterm infants. The recommendations include:

- Using an individualized approach to the provision of care
- Early use of CPAP with selective use of surfactant
- If mechanical ventilation is necessary – early administration of surfactant with rapid extubation if possible



## Rationale

- Infants with RDS may vary markedly with regards to the severity of illness, maturity, and the presence of other complications
- CPAP started soon after birth is a strategy that appears to reduce BPD/death and is an alternative to the prophylactic or early surfactant approach (with mechanical ventilation)
- While delivery room CPAP is not expected to prevent all intubation events, there is not evidence of harm associated with starting CPAP in the delivery room

What do STABLE & NRP say



## STABLE Airway

- Candidates for CPAP not specific to delivery room but include
  - Adequate Respiratory rate
  - Increased respiratory support needed
  - Increased Work of Breathing
  - Increased O<sub>2</sub> requirements
  - Some Apnea, mild acidosis
  - Co<sub>2</sub> < 55-60
  - Supplemental oxygen 40-70 % to maintain O<sub>2</sub> Sats 90-95%
  - Atelectasis on X-ray

## STABLE Airway

- Infants who are not candidates for CPAP
  - Rapid progressive respiratory failure
  - Increased frequency and severity of apnea with cyanosis and or bradycardia
  - Gasping
  - Diaphragmatic hernia
  - Tracheoesophageal fistula or Esophageal atresia
  - Choanal atresia
  - Cleft palate
  - Poor respiratory or cardiovascular function

## NRP Delivery Room recommendations for CPAP

Breathing

Heart rate  $\geq$  100

Labored breathing

Oxygen saturations  $<$  target saturation range

Use T-Piece resuscitator

If prolonged CPAP consider nasal prongs or nasal mask and after initial stabilization, CPAP can be administered with a....

Bubble water system, a dedicated CPAP device or a mechanical ventilator

## How to implement Bubble CPAP in the Delivery room

Identify team

Pre-Brief

Equipment & Supplies set up and checked



## Delivery Personnel/ Team Composition

- Should be based on individual patient needs
- At least two providers committed solely to the evaluation and care of the newborn
- Most Teams have a lead (MD, NNP, or advanced practice RN) as well as an additional RN or RCP

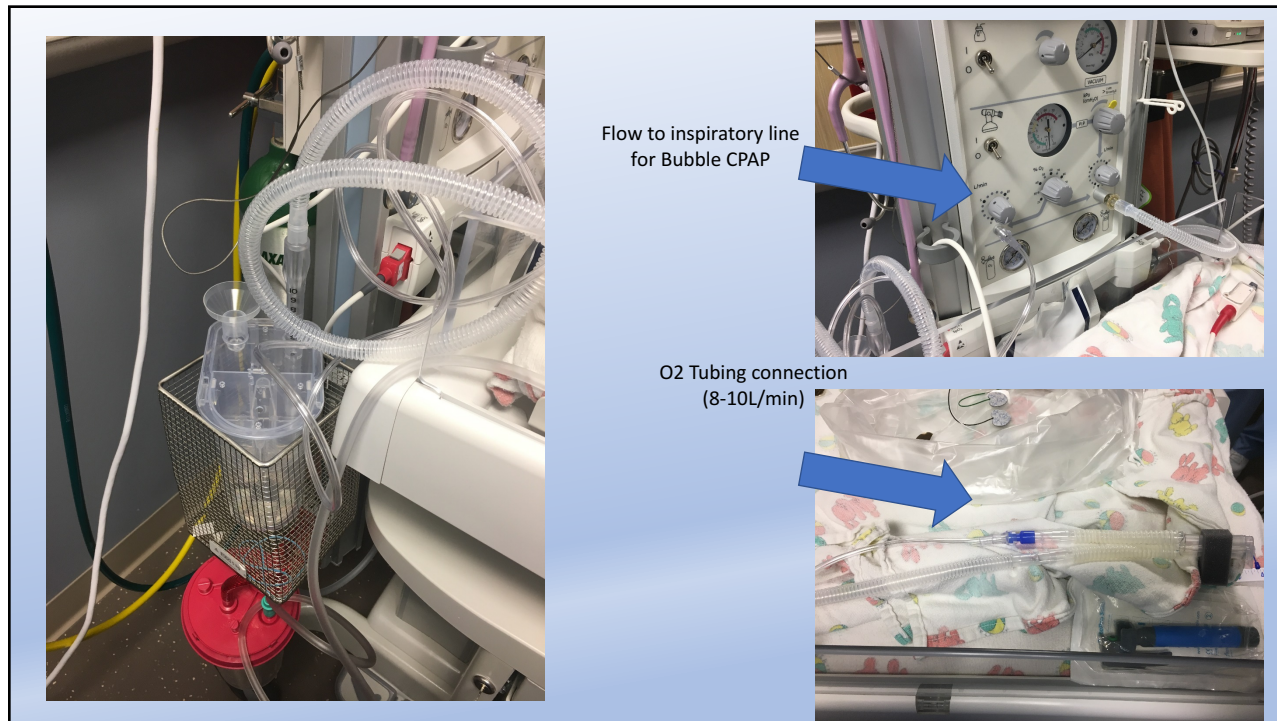


## Bubble CPAP for VLBW Infants in the Delivery Room

- Work with team to identify patients that will likely need CPAP support (i.e. <28 weeks, <1500g)
- Set up supplies in the delivery room prior to patient arrival

### Key Points:

- Make sure to weigh baby before placing patient interface
- Bring Inspiratory Tubing and Pressure Pop-off valve from the delivery room for use with the bedside set-up

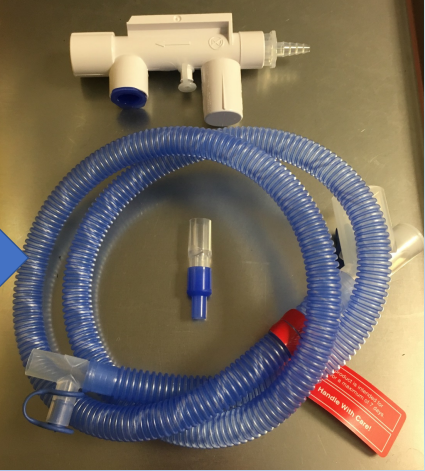


**VLBW RT Delivery Items:**



- BC190-05 (FlexiTrunk Interface 50mm)
- BC800-10 (small mask)
- BC801-10 (medium mask)
- BC3020-10 (3.0mm nare prongs)
- BC3520-10 (3.5mm nare prongs)
- 22-25cm Bonnet
- 25-29cm Bonnet
- Oxygen connector tubing
- 500mL bottle of water



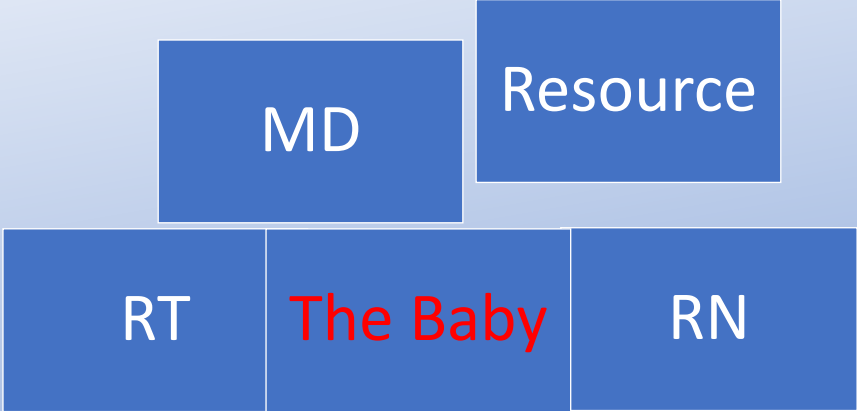
Keep to take back to NICU for bedside set-up



Connect O2 tubing for shuttle transport to NICU



# Let's Practice



MD

Resource

RT

**The Baby**

RN



## Delivery Room Best Practice Discussion



Who is doing Bubble CPAP in delivery room?

How do you coordinate care?

Who is giving Surfactant in delivery room?

How are infants transported from the delivery room?

Additional best practice sharing?

