

Surfactant Administration via Supraglottic Airway

SALSA Protocol

Eligibility Criteria

- Infants **>28w0d** and **>1250 g** and **<48 hours old**
- Infants on CPAP with FiO₂ requirement >30% to maintain saturations >90% SpO₂ or rising FiO₂ requirement after initial admission stabilization.
- Suspected RDS with signs of respiratory distress
- CXR obtained to rule out pneumothorax (make sure to have OG is in place to verify esophageal patency)

Exclusion Criteria

- Suspected or known airway, esophageal or pulmonary anomaly
- Infants with persistent apnea
- Concern for pneumothorax
- Severe acidosis (pH<7.15) or evolving shock

Use caution in the setting of meconium aspiration and/or HIE.

Supplies (See Figure 1, below)

- iGel supraglottic airway (LMA) size 1*
- Double swivel elbow connector
- Multi-access catheter
- Colormetric CO₂ detector
- Syringe for surfactant, with dose drawn up
- T-piece resuscitator, set to appropriate PIP and PEEP (use 20/5 if on PEEP 5, ok to individualize based on patient's settings).

- Emergency Equipment:
 - Suction catheter, wall suction
 - Appropriately-sized face mask
 - Airway box, in case procedure is converted to intubation

Surfactant (Poractant alfa/Curosurf)

- Initial dose: 2.5 mL/kg
- Repeat dose (after 12 hours from the first dose): 1.25 mL/kg

Pre-medication

- Atropine (0.02 mg/kg/dose), IV
- Oral/buccal 24% sucrose (Sweet ease)
- Routine use of sedatives is not recommended
- Calculate rapid onset paralytic dose but do NOT draw up or administer unless necessary to treat laryngospasm (i.e., rocuronium dose 0.6 mg/kg IV via rapid push)

Preparation for SALSA

- Confirm the infant has an orogastric (OG) or nasogastric (NG) tube and functioning IV catheter in place
- Prioritize non-pharmacologic approaches to analgesia such as swaddling (while maintaining visualization of the chest) and sucrose solution. Use atropine to blunt reflex bradycardia.
- Position infant supine, with the body straight, a shoulder roll in place, and head midline in the “sniffing” position **with CPAP/NIPPV in place**, similar to positioning for intubation or LISA.
- Aspirate stomach contents, and remove OG/NG
- Attach CO2 detector and swivel connector to T-piece resuscitator (Figure 2)
- Prepare team for procedure, airway provider to perform time-out.

Performing SALSA

- RN administers buccal sucrose
- Place LMA—advance until resistance is met. Connect T-piece (with CO2 detector and swivel connector) to LMA and deliver breaths via T-piece. Use chest rise and color change on CO2 detector to confirm placement.

- If no color change, adjust LMA depth and re-assess
- If unable to achieve chest rise/color change, remove and replace
- Limit to three LMA placement attempts,
- Once placement confirmed, deliver PEEP via LMA
- Attach syringe to MAC, advance MAC to double red line (20cm) at top of swivel (See Figure 3) and deliver surfactant in two aliquots, allowing recovery in between.
- Provide PPV via LMA if oxygen saturation <90% or HR <100.
- Deliver PEEP via LMA for 30 seconds after delivery of final aliquot of surfactant.
- Ensure PEEP is still delivered to nasal CPAP and then remove LMA
- Replace NG/OG and aspirate stomach contents, note amount of surfactant in stomach.
 - Some surfactant, typically <50% of the administered dose, in the stomach is expected. Follow changes in FiO2 as well to determine success of procedure.

Convert SALSA to Endotracheal Intubation if severe bradycardia/desaturation or >3 attempts required.

Do not convert SALSA to LISA.

*If using a different LMA, ie the Air-Q, check that the size is appropriate for the patient. You will need to inflate the LMA cuff, if present. Also, check the depth of insertion of the MAC into the LMA + swivel set-up in order to get the tip of the MAC to just before the distal opening of the LMA.

Figure 1: Materials for SALSA



Materials for SALSA: T-piece resuscitator (A), colorimetric CO2 detector (B), swivel adapter (C), i-gel LMA (D), and multi-access catheter (E).

Figure 2: SALSA administration set-up

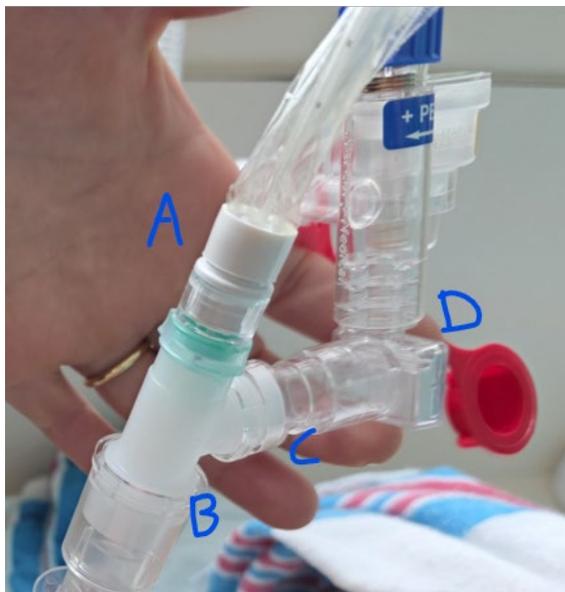


Figure 2: Swivel adapter connected to MAC (A) and site of connection to LMA (B), with CO2 detector connected to swivel (C) and to T-piece (D).

Figure 3: Appropriate catheter depth



Figure 3: Advance MAC until double red line is at top of swivel adapter.

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