Title:	North West Neonatal Operational Delivery Network Consensus Statement on the Threshold for Intubation & criteria for LISA for babies born ≤32 weeks' gestation
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Criteria for Delivery room intubation & LISA in preterm infants born ≤ 32weeks' gestation

Evidence suggests effective delivery of delivery room CPAP and successful transition of the preterm infant to non-invasive respiratory support has shown to be associated with a reduced incidence of Bronchopulmonary Dysplasia (BPD). However, there is lack of international consensus on criteria/threshold for intubation in the delivery room and most data is available from small single centre QI initiatives using higher static or dynamic PEEP and effective CPAP interfaces.

The following is not meant to act as a formal guideline, rather as a framework of potentially better practices as agreed upon by a MDT of regional stakeholders with the aim of reducing the use of mechanical ventilation and minimising lung injury.

The aim should be for Infants born in LNUs ≥ 27 weeks and NICUs ≥ 25 weeks to transition to CPAP in the delivery room if breathing spontaneously and stable hemodynamically (HR >100).

Considerations for clinical decision making:

At NICUs lower gestation babies can be tried on CPAP based on clinical discretion but with an awareness CPAP failure rates increase progressively at GA ≤25.

At LNUs CPAP can still be offered for transition in the delivery room in a stable spontaneously breathing infant, if born between 26-27 weeks. However, intubation should be undertaken for transport and ongoing respiratory support provided in a controlled environment once baby has been transferred to the neonatal unit.

- **workforce and level of skill & seniority in staff**
- **administration of optimisation measures, such as a full course of antenatal steroids.**
- **no history of chorioamnionitis**
- **absence of other risk factors like PPROM/ pulmonary hypoplasia**

For all infants ≤ 32 weeks' gestation, at all levels of unit:

If a spontaneously breathing infant with no risk factors is on CPAP 7-8 cm H2O requiring >40% -50% FiO2 AND /OR has evidence of significant respiratory distress at 10 minutes they should be intubated by appropriately skilled personnel.

OR

If a baby can be stabilised on CPAP (i.e. no significant increased work of breathing & appropriate oxygenation) whilst spontaneously breathing, the aim should be to transfer them to the Neonatal Unit for reassessment and decision-making regarding LISA or intubation, as this is a safer environment

Note:

- CPAP pressures can be safely titrated from 6-8cm H2O *
- Delivery room LISA is still an evolving practice with lack of robust evidence and could be only considered by NICUs based on individual experience/ consensus but preferably not used for the very preterm infants**
- GRUNTING (mild) IS NOT considered significant respiratory distress and preterm infants grunt physiologically to maintain FRC, however shallow pattern of respiration, inconsistent drive or apnoea / bradycardia should be considered indications of intubation

If a spontaneously breathing infant born ≥ 25 weeks in a NICU or ≥ 27 weeks in an LNU has transitioned successfully to optimal CPAP of at least 6cm H2O and requires surfactant (FIO2 >30% within 72 hours of life) OR exhibits signs of increasing respiratory distress even with FiO2 <30% surfactant should be administered – LISA should be the preferred method if expertise available.

Infants born ≤ 27 weeks in an LNU <u>should not</u> be offered LISA to administer surfactant as they will require intubation for transport.

Note:

- It is recommended that infants born ≤ 28 weeks be offered CPAP before and after performing of LISA (in the immediate few hours after procedure) and not HFNC to provide optimal PEEP.

Based on available evidence, 1 further dose of LISA can be offered if criteria is met within 72 hours. Evidence is not sufficient for >2 courses and in these circumstances intubation and ventilation is potentially the better option.

SCUs should not be offering LISA at present, and the advice guideline followed for all babies <32 weeks gestation, with early escalation and transfer for any infant requiring respiratory support.

Note:

* Evidence is lacking to determine optimal or maximal effective PEEP that can safely be used. European RDS guidelines (2023) recommends using between 6-8 cm H2O.

**Small randomised and quasi-randomised trials in UK

References

European RDS guidelines (2023) European Consensus Guidelines on the Management of Respiratory Distress Syndrome: 2022 Update - PMC