HOB Initiative Summary 22/August/2025 Session Title: Delivery Room Stabilization and Transfer

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Areas Covered
- Epidemiology and risks for newborn complications
- Clinical features
- Clinical Care Bundle for delivery stabilization and transfer

ECHO Session Panelists:
Experts
Dr. Victoria Nakibuuka

Patient Case Presenters
Dr. Nampijja Cissy, Ms. Ndagano Allen, Dr. Mirembe Immaculate

Moderator

Mr. Ronald Mboowa

Epidemiology (Sankar et al, 2016, Patel et al, 2011, Okomo et al, 2015) **)**
- 2.4 million newborn deaths per year globally

- 90 % occur in Sub saharan Africa
- 30-35% of deaths as a result of birth asphyxia despite successful resuscitation
- Most deaths occur in the first 24 hours, 60-70% in the first one hour and majority of these deaths are preterm

Risk Factors

- Birth Asphyxia
- Hypothermia - Admission temperature strong predictor of death (Mullany et al, 2010)
- Prematurity
- Infections (Sepsis)

Causes of death in extremely preterm infants within the first 12-72 hours (Patel et al, 2015)

- Immaturity
- Respiratory distress syndrome
- Infections
- Congenital anomalies
- CNS Injury

Clinical features

Newborns who need resuscitation prior to transfer can be identified by the following

- They are preterm
- Inadequate or lack of breathing
- Pulseless
- Have poor muscle tone
- Have abnormal skin color
- Have meconium stained liquid

Stabilization

Need to be well prepared in the delivery room for resuscitation with functional equipment

- Providing warmth - wrap in clothes, radiant warmer etc
- Ensuring airway is open and baby is breathing - suction, provide supplemental oxygen or positive pressure ventilation as necessary (monitor rising HR, chest wall movement, skin color - cyanosis)
- Ensuring circulation - chest compression +/- ionotropes like epinephrine
- Clamping the umbilical cord - clamp immediately if unstable or delay if stable
- Monitoring progress

Transfer

- Intra and inter facility transfer for continuing or advanced care requires trained staff, transport team and sustenance of stabilization measures and continuous monitoring.

Communication

- Between transfer and recipient teams at NICU
- With parents (both if able and available, certainly the mothers)

Treatment

Birth Asphyxia

- Neonatal Resuscitation: Training in neonatal resuscitation reduced intrapartum deaths by as much as 30% (Wang et al. 2022)
- Labor room CPAP: Reduces need for intubation, mechanical ventilation and need for surfactant (Desai et al, 2017)

Delivery room interventions for hypothermia

- Communicate with parents about condition of new born
- Give nutritional care
- Delay cord clamping
- Treat for nosocomial infections
- Keep necessary records
- Support cardiovascular system
- Support respiratory system
- Provide antenatal counseling and brief team
- Send appropriate lab samples (CBC, ABG, Blood Glucose, Blood cultures, CXR)
- Prevent hypothermia

Clinical Care bundle

- Small set of evidence-based interventions for a defined patient population and care setting that, when implemented together, results in significantly better outcomes than when implemented individually (Resaretal 2012).
- At risk neonates should be prepared for prior to delivery; anticipate and prepare for resuscitation followed by stabilization and transfer, steps which require implementation of a care bundle in order to standardize it, useful in an emergent situation.
- **Delivery room stabilization bundle** includes the following:

1. *Designated Neonatal resuscitation team*
    - Two midwives
    - One medical officer
    - Desirable to have a paediatrician and neonatologist and midwife as part of team
    - Especially for high risk pregnancies
    - Team should have training in advanced neonatal resuscitation
    - Equipment needs: Ambubags, neopuff, CPAP, Radiant warmers
2. *Initiation of CPAP in the Delivery*
    - Labour room (LR) CPAP reduces the need for intubation, mechanical ventilation and surfactant in preterm neonates with RDS.
    - Babies weighing less than 1500g or those with Silverman score of 3-6 need CPAP.
    - Those with a score of more than 6,with apnoea and heart rate of less than 100 should be intubated and given surfactant if they are preterms,
    - CPAP should be initiated early to establish adequate lung volume or functional residual Capacity especially in those with respiratory distress syndrome
3. *Neonatal warm Transport*

- Maintain delivery room temperature between 23–26C.
- Wrap Infants less than 28 weeks' gestation or <1500 g in polyethylene or polyurethane bags up to their necks as soon delivered, without being previously dried in order to maintain warmth; their skins are too fragile otherwise
- Use exothermic mattresses and radiant heaters within 10 minutes of birth.
- Skin to skin contact with mothers if stable.
- Warmilu IncuBlanket system - safe, non-electric reusable system designed to thermoregulate infants who are at risk of becoming hypothermic and serves as an alternative traditional incubator, a transport incubator, and/or as a supplement to kangaroo mother care.

Collaborating Partners

1. Ministry of Health of the Republic of Uganda
2. Seed Global Health
3. Techies Without Borders

References

- Sankar, M. J., Natarajan, C. K., Das, R. R., Agarwal, R., Chandrasekaran, A., & Paul, V. K. (2016). When do newborns die? A systematic review of timing of overall and cause-specific neonatal deaths in developing countries. Journal of perinatology : official journal of the California Perinatal Association, 36 Suppl 1(Suppl 1), S1–S11. https://doi.org/10.1038/jp.2016.27
- Patel RM, Kandefer S, Walsh MC, et al. Causes and timing of death in extremely premature infants from 2000 through 2011. *N Engl J Med*. 2015;372(4):331-340. doi:10.1056/NEJMoa1403489
- Okomo, U. A., Dibbasey, T., Kassama, K., Lawn, J. E., Zaman, S. M. A., Kampmann, B., … Bojang, K. (2015). Neonatal admissions, quality of care and outcome: 4 years of inpatient audit data from The Gambia's teaching hospital. Paediatrics and International Child Health, 35(3), 252–264. https://doi.org/10.1179/2046905515Y.0000000036
- Mullany, L. C., Katz, J., Khatry, S. K., LeClerq, S. C., Darmstadt, G. L., & Tielsch, J. M. (2010). Risk of mortality associated with neonatal hypothermia in southern Nepal. Archives of pediatrics & adolescent medicine, 164(7), 650–656. https://doi.org/10.1001/archpediatrics.2010.103
- Desai SA, Tule P, Nanavati RN. Labour room Continuous Positive Airway Pressure (LR CPAP) in preterm neonates <34 weeks: An Indian experience. Sudan J Paediatr. 2017;17(2):30-34. doi:10.24911/SJP.2017.2.3
- Wang C, Yue Q, Xu T. Reducing Neonatal Mortality with a Three-Stage Neonatal Resuscitation Training Programme - China, 2004-2021. China CDC Wkly. 2022;4(36):807-810. doi:10.46234/ccdcw2022.168

- Resar R, Griffin FA, Haraden C, Nolan TW. Using Care Bundles to Improve Health Care Quality. IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2012. (Available at ihi.org)

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