



**PEDIATRIC NEWBORN
MEDICINE CLINICAL
PRACTICE GUIDELINES**

Care of the Extremely Low
Birthweight Infant:
The Golden Hour





Clinical Guideline Name	Care of the Extremely Low Birthweight (ELBW) Infant: The Golden Hour
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Contact Person	Terri Gorman, MD <u>Members of the ELBW/Golden Hour Working group:</u> Mary Ann Bennett, Sandra Borgeson, Allison Borkovec, Kara Busta, Suzanne Fernandez, Jeanine Levantian, Corinne Pryor, Annette Scheid, Linda Van Marter <u>Special Consultants to the ELBW Team:</u> Mandy Belfort, Keith Hirst, Hunter Pepin, Sara Rostas
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This is a clinical practice guideline. While this guideline is useful in approaching the care of the extremely low birth weight infant, clinical judgment and/or new evidence may favor an alternative plan of care, the rationale for which should be documented in the medical record.

1. Purpose

To standardize the preparation for and initial care of the extremely premature and low birthweight infant (ELBW), especially those < 28 weeks or EFW < 1000g. This document guides two teams working simultaneously: (1) the delivery team and (2) the NICU admission team.

Prenatal Consultation

- Neonatologist to place consult note in maternal chart in Epic
 - Discuss importance of mothers' milk and early pumping
 - Discuss donor human milk (DHM) – obtain consent if delivery imminent (ie, able to place consent in chart)
 - Discuss potential for level II transfer as appropriate
- Triage and/or admit RN to meet parents prior to delivery when delivery not emergent
- Family tour of NICU when possible

Preparing for multiples

****If multiple ELBW's during evening hours, assess abilities of medical team and have low threshold to call in back-up attending for timely completion of Golden Hour tasks. NIC to assess ability to flex RN staff for admission and RT team to communicate with leadership if need to call in back-up RT****



Delivery Team

- Delivery team consists of the admitting RN, triage RN, RT, attending neonatologist, admitting fellow, DR resident
- Hold pre-delivery huddle with delivery team
 - Roles clearly assigned for code leader, airway, heart rate/monitoring, code cart/medications, recorder
 - For ELBW infants, the airway/intubator will be an experienced fellow, NNP or attending neonatologist with ultimate determination of airway assignment at the discretion of the attending neonatologist.
- Team members to introduce themselves to parents prior to delivery if not emergent

Delivery Team: Pre-birth

- L&D RN will increase room temp to 77 degrees Fahrenheit (for all infants < 28 weeks PMA or < 1000g EFW), delivery team will confirm room warmed
- NICU RN will:
 - Set up Giraffe Omnibed with scale for the infant to be delivered onto and use shuttle to transfer to NICU.
 - From bottom to top, the set up of the Omnibed should be:
 - 1. Omnibed mattress
 - 2. Blanket
 - 3. Chemical warming mattress (to be activated just prior to birth)
 - 4. Blanket
 - [When in OR with sterile field:
 - 5. Sterile drape
 - 6. Sterile blanket]
 - 7. Open hooded polyethylene bag (note: RN to open using sterile technique when in OR being placed on top of sterile field)
 - For the LDR, set up Omnibed in the room and keep the shuttle separate but in close proximity to DR. For the OR, keep shuttle attached to Omnibed. In the OR, the Omnibed and the shuttle should each be separately plugged into the wall outlets, then prior to moving, the Omnibed should be plugged into the shuttle and the shuttle unplugged prior to transport.
 - Ensure Omnibed wheels are locked once positioned in DR/OR
 - Ensure that the tone for the Apgar timer is turned on.
 - Set up monitoring with pulse oximetry and EKG leads – either monitor mounted to shuttle, or monitor on roll stand.



- RT will:
 - Confirm set up of mask/bag with appropriate flow, FiO₂ and PEEP and PiP
 - Confirm NeoPuff set up with predetermined pressure settings (PEEP and PiP)
 - For infants ≥ 26 weeks, have bubble CPAP in the delivery room set to 6cm H₂O (0.25% Acetic Acid to be added at delivery if spontaneously breathing or once determination that CPAP will be used)
 - Set up laryngoscope handle, blade, ETT (2.5, 3.0) with Stylet (2.0 if EFW < 500 g or < 24 weeks PMA to be present in DR), tape, Caviion, ETCO₂ detector
 - Ensure suction and suction catheters (6 and 8 Fr) available and functioning
- MD/LIP will:
 - Collaborate with RN and RT to ensure appropriate equipment set up as listed
 - Airway provider should be the last person to check the set flow, PEEP and attainable PIP on bag/mask prior to delivery

Delivery Team: Delivery Room Course

- OB will perform delayed cord clamping for 60 seconds in absence of contraindication
 - Triage RN will start Apgar counter and count down for OB, giving time at 30 seconds, 45 seconds and countdown to 60 seconds with 5 seconds remaining.
 - 2nd RN also to start timer on Voalte phone to track timing throughout the full Golden Hour (Omnibed timer will reset whenever unplugged.)
- Placement of infant on warmer:
 - In OR, OB will place infant on the open hooded polyethelene bag on the sterile field, RN will lift the baby and polyethelene bag, RT will pull out sterile drape
 - RN and MD will secure the hood of the polyethelene bag
 - In DR, OB will place infant on warmer onto open polyethelene bag, RN and MD will ensure infant in bag and pull hood over head
- Cardiorespiratory Monitoring
 - Immediate placement of EKG limb leads first followed by pulse oximeter on right hand (to be performed by RN 1 with assistance from RT as appropriate)
- RN to place temperature probe
- As soon as monitoring devices in place, RN to close bag by securing Velcro with umbilical cord out of the bag
- Airway with assistance as needed to dry face (this likely to be occurring simultaneously with placement of monitoring probes)
- If breathing, RT to place immediately on nasal mask CPAP with CPAP set to 6cm H₂O (goal by 2 minutes of life)
- If not breathing, give Airway to provide PPV via bag/mask with PEEP set at 6 cm H₂O
 - If PPV effective and effective respirations established – place immediately on nasal mask CPAP
 - If PPV by BMV not effective, or if infant does not establish respirations – intubate



- Intubation by experienced fellow, NNP, or attending only for infant < 27 weeks or any infant requiring emergent intubation due to bradycardia (intubator assigned at the discretion of the attending neonatologist)
- Cavilon to aid taping of ETT
- Confirm ETT placement by ET_{CO}₂ color change and auscultation confirmation by two providers (RT and attending neonatologist)
- Weigh in DR x 2 to confirm weight– weigh in hooded polyethylene bag and account for weight of bag (**hooded bag weighs 30 grams**)
 - Be sure to “weigh” infant x 2, including re-zeroing the bed and relifting the infant
 - If there is ≥ 30 gram difference in weight, a third weigh will be required
 - If < 30 gram weight difference, go with first weight
- MD (typically attending) to send Voalte message to entire neighborhood admitting team to include infant’s weight and if infant intubated versus on bubble CPAP. This notification will serve as preparation time for admitting team to gather.
- Before leaving DR, place temp probe on right flank (skin, probe, mepitec, reflective cover)
- Efficient transfer – goal out of DR by 15 minutes of life

NICU Admit Team

- NICU Admit Team consists of admitting RN, RT, admitting intern/LIP, admitting fellow, admitting neonatologist

NICU Admit Team: Pre-Admission

- RN to prep peripheral IV set up, IVF, PN, medications prior to delivery/patient arrival to ICU bedspace
 - Prep for PIV placement
 - Starter PN (pre-warm)
 - D5W
 - 1/2NS + 0.5unit/mL heparin for umbilical line placement (pre-warm)
- RT to prep for administration of surfactant and ventilatory needs
 - RT to have MAC and syringe available in case of Surfactant administration
 - Only withdraw Surfactant from Omnicell upon acknowledgement that infant is intubated
 - Set up ventilator for volume guarantee mode for < 26 weeks or arriving intubated
 - If infant on bubble CPAP in DR, will keep on same set up for admission
- Intern/LIP to prep for umbilical line placement and place admit orders on pended baby in Epic
 - Order stat X-ray for ETT placement for infants < 26 weeks or if DR team messages that infant will arrive intubated
 - Notify Radiology Technologist of pending ELBW birth by paging 11184



- Once infant is born and need for CXR for surfactant is known, page Radiology Technologist by text paging 11184 at time of infant birth to request "ELBW Stat Xray Neighborhood __, Room ___"
- Alert pharmacy to pending admission for stat delivery of all fluids, antibiotics, caffeine
- Stat orders for antibiotics, caffeine and any other medications that require weight based preparation to be placed once infant weight messaged from delivery room team (weight should be entered as both birthweight and dosing weight in Epic)

NICU Admit Team: Once DR team message relayed

- RN will:
 - Calculate IVF rates for birthweight
- RT will:
 - Calculate dose of Surfactant and withdraw Curosurf from Omnicell and begin process of warming surfactant if infant will be arriving intubated
 - Preload MAC with Curosurf
- MD/LIP will:
 - Input orders for weight based medications
 - Calculate anticipated depth of insertion for umbilical lines
 - Ensure radiology technologist at bedside for CXR if infant arriving intubated for efficient ETT placement check prior to instillation of surfactant
- Entire admit team will gather at admit room for admission

Delivery Team and NICU Admit Teams: NICU Admission

- Admission takes precedence over rounds – admitting fellow oversees Golden Hour. If admitting multiples, admitting attending responsible for 2nd baby. For higher order multiples, clear plan for well staffed team to be made prior to delivery.
- Utilize Voalte timer from delivery room for documentation of timing of procedures
- Omnibed pulled into bedspace and plugged in, water added to humidity reservoir
- RN switches pulse oximetry and EKG monitoring to room monitor.
- If infant intubated, CXR immediately (remove chemical warming mattress for Xray, then replace)
- Once ETT position confirmed, instillation of surfactant by RT. Document minute of life surfactant instillation initiated, referencing time on Voalte timer.
- RN then places PIV (expose only extremity from polyethelene bag for IV placement)
- Run D5W @ 100ml/kg/day via PIV until umbilical line confirmed in correct position.
- Once PIV in place, MD/LIP places umbilical lines as indicated, keeping infant inside the polyethelene bag with just umbilicus exposed for line placement. Draw bloodwork as ordered. Then confirm line placement with x-ray. Document in procedure note time of life lines initiated and completed, referencing time on Voalte timer.



- Once umbilical line placement confirmed, RN secures line(s) and initiates starter PN at 50ml/kg/day and **NEW** bag of D5W (using 2 person technique [[hyperlink NICU 1.3](#)] to UVC to maintain TF 100ml/kg/day. If UAC in place, initiate ½ NaAcetate + 0.5 unit/ml heparin at 0.8ml/hour)
- RN to close Omnibed, humidify per protocol – document time in minutes of life at lid closure.
- Goal timeline for Omnibed closure 60 minutes of life
- Once Omnibed reaches goal humidification, RN will take infant out of polyethylene bag and obtain head circumference (if not already done with placement of CPAP) and length and record in Epic.
- MD/LIP provides parents update and obtains consents for donor milk, blood transfusion, and MA HiWay.

Post Golden Hour Huddle

- Once Golden Hour complete, DR and admit teams to huddle and debrief the course.
- Complete Golden Hour Debrief form

Included Addendums:

1. Extreme Preterm Delivery Room Checklist
2. Extreme Preterm Delivery Room Flow Chart
3. Extreme Preterm ICU Admission Checklist
4. NICU Admission Flow Chart for the Extreme Preterm Infant
5. Delivery Room Staging for the Extreme Preterm Infant