UC DAVIS HEALTH | CHILDREN'S HOSPITAL

# Small Baby Admission Guideline

For preterm newborns < 29 weeks or < 1000 grams

*Note: The electronic version of this document contains hyperlinks to other resources.*

**Fluids, Electrolytes, Nutrition**

- Obtain weight on admission and use BW as dosing weight (weigh infant with CPAP apparatus in place)
- Do not adjust dosing weight until infant's weight is over birthweight
- Initial total fluid goal of 100 ml/kg/day
    - Initiate starter PN (D10W with 3% AA and 15 mEq/L calcium), preferably via central line (*Note: If dextrose-containing fluids are started prior to central line placement, run D10W or D5W in PIV and save starter PN for central line*)
        - If < 27 weeks, run starter PN at 50-60 ml/kg/day (GIR 3.5-4.2 mg/kg/min and protein 1.5-1.8 g/kg)
        - If ≥ 27 weeks, run starter PN at 80-100 ml/kg/day (GIR 5.6-7 mg/kg/min and protein 2.4-3 g/kg)
        - *Note: The maximum rate for sPN in the first 24 hours of life is 100 ml/kg/day.*
    - UAC fluid – 0.45% (7.7 mEq/100 ml) sodium acetate with heparin (0.5 units/ml) at 0.5 ml/hr
    - Use D5W infusion to make up total IV fluid goal (TFG = starter PN + D5W + UAC fluids)
    - Flush volume of 0.5 ml is usually sufficient, can consider 0.4 ml flushes (need volume sufficient to clear line)
    - RN should document volume of all flushes given

- Provider to order x-ray for 6-12 hours post central line placement to re-confirm position
- Custom TPN should be ordered for infants born before 12:00pm (to start during night shift)
- Minimize fluctuations in blood pressure and cerebral blood flow by slowly flushing/withdrawing from lines (also see instructions for Hummi device for UAC and PAL blood draws)
    - Maximum rate for pushing/withdrawing from umbilical lines is 1 ml per 40 seconds (can use the timer on the isolette to facilitate this)
    - Consider giving fluid boluses slowly (e.g., 10 ml/kg over 1 hour) using an IV infusion pump, if patient condition allows
- Enteral feeding (also see separate guideline):
    - Begin oral/buccal swabs on admission with EBM/colostrum (or DBM, if EBM is contraindicated or birthing person does plan to provide breast milk) up to 0.1 ml every 2-6 hours
    - Obtain DBM assent from parent(s)
    - Unless contraindicated, initiate trophic enteral feeds of EBM/DBM within first 24 hours of life (use high-protein DBM for infants < 1000 g)
    - Initiate trophic enteral feedings
        - For infants < 1000 g, begin trophic feeds at 10 ml/kg/day
        - Trophic feeds may be given q3-q6, depending on volume
- Lab monitoring (also see separate guideline):
    - POC glucose and blood gases (with electrolytes, lactate, and Hgb) every 6 hours (for ≥ 24 weeks) or every 4 hours (< 24 weeks) and PRN
    - Serum bilirubin at 12 hours of life then daily with morning chemistry panel (can consider timing with other labs/gases)
    - BMP/Mg/Phos within first 24 hours of life (OK to time with other labs) and then qAM at 5:00am
    - Weekly TPN panel (BMP/Mg/Phos, Triglycerides, Direct bilirubin) while on TPN

(usually Tues)

**Respiratory**

- All patients < 24 weeks are intubated in the DR (no trial of CPAP)
    - ETT depth 5.5-6.0 cm at the gum
    - Have 2.0 ETT available for < 23 weeks, consider 2.5 ETT for ≥ 23 weeks
- For intubated patients, give endotracheal surfactant as soon as possible after ETT placement is confirmed on CXR (goal within 10 minutes of x-ray confirmation)
- Give loading dose of caffeine (20 mg/kg IV x 1) on admission and order maintenance dose (5-10 mg/kg IV daily; 8 mg/kg is default) to start the following day
- Mode of ventilation:
    - HFJV is first-intention mode of ventilation for intubated patients < 27 weeks
    - For conventional ventilation, Volume Guarantee (PRVC) A/C mode is preferred
- Target $CO_2$ level is 45-55 for the first 3 days (IVH window) and 45-60 for the next 4 days
- Consider ordering transcutaneous $CO_2$ monitoring
- Lab monitoring:
    - Blood gases every 6 hours (for ≥ 24 weeks) or every 4 hours (< 24 weeks) and PRN

**Cardiovascular**

- Treating hypotension:
    - Always assess infant's perfusion before treating hypotension (e.g., cap refill, urine output, presence of metabolic acidosis, or elevated lactate)
    - If fluid bolus (e.g., 10 ml/kg normal saline) is given, run over 30-60 minutes
    - Vasopressors/inotropes may be considered as the initial treatment for

symptomatic hypotension and should be considered if hypotension persists after administration of a fluid bolus

    - Blood products should be given if concern for blood loss or coagulopathy (give pRBC transfusion over 3-4 hours, OK to give platelets/FFP/cryo over 1-2 hours)
    - In this population, consider hydrocortisone for hypotension (but do not give with indomethacin)

- Echocardiogram
    - Obtain a screening echocardiogram for all infants on or before DOL7
    - Treatment of PDA is at the discretion of the primary team (see *PDA Management Guideline*)
- Lab monitoring:
    - Blood gas with lactate (preferably arterial) PRN

**Hematological**

- Send cord blood for Type & Screen, if available (ordered as “Cord Blood Test” in EMR)
- If concern for bleeding, obtain blood consent from parent(s) ASAP
- Lab monitoring:
    - Follow hemoglobin on blood gas every 6-12 hours and PRN
    - Obtain CBC with differential at 6-12 hours of life, unless indicated earlier (OK to time with other labs)
    - Total serum bilirubin at 12 hours of life then qAM

**Infectious Disease**

- Sepsis screening is recommended for all infants < 27 weeks GA, particularly when there are risk factors are present. Sepsis risk factors include:
    - PPROM or preterm labor

- ROM > 18 hours
- GBS+ or unknown with inadequate intrapartum treatment
- Maternal fever/chorioamnionitis
- No prenatal care

- Order empiric antibiotics for anticipated sepsis rule-out (consider monitoring off antibiotics, if low risk for sepsis):
  - Gentamicin 5 mg/kg (for < 29 weeks GA) IV x 1 dose
  - Ampicillin 50 mg/kg IV q12 hours x 3 doses (or 100 mg/kg for meningitic dosing)
- Labs:
  - Blood culture (ideally obtained with umbilical line placement prior to antibiotic administration)
  - CBC with differential at 6-12 hours (or can send with blood culture when umbilical lines are placed)

**Neurological**

- Follow *Small Baby Skin to Skin* for the first 72 hours of life (the "IVH Window"):
  - Keep head midline
  - Elevate head of isolette 30 degrees
  - Do not bathe
  - No weight/measurements after admission measurements
  - Avoid suctioning airway (and other noxious stimuli)
  - Avoid rapid flushing/withdrawing from lines (max 1 ml per 40 seconds)
  - Modified skin-to-skin (e.g., hand hugs) in lieu of kangaroo care
- Mindful handling until 3 weeks of life or 29 weeks CGA, whichever is earlier

- Consider limiting care times to q6h for stable infants

- Order screening head ultrasounds for 1 week and 1 month of life (if ordering as "Routine," time the order for Monday or Thursday)
    - Consider earlier screening head ultrasound for unstable or high-risk infants
- Consider indomethacin for IVH prophylaxis for infants < 28 weeks GA (see *Indomethacin for IVH Prophylaxis* guideline)

**Other**

- Consult STEPS team for family support

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