System	Overview of Management
Cardiovascular	1) Monitor with 3-lead EKG per routine. Expect bradycardia (< 100 bpm) when temperature < 34 °C. 2) Vascular access; • Establish peripheral IV access immediately (avoid scalp IVs). • Insert UVC (double lumen) if possible. If unable, insert low lying UVC until an EPIV is inserted. • Consider arterial line monitoring if treating and monitoring hypotension.
Fluid and Electrolytes	1) Maintenance fluid; • Total fluid volume of 60 ml/kg/day. • Use Standard TPN @ 50 ml/kg/d and D10W at 10 ml/kg/day until custom TPN is available. • Maintain GIR no less than 4-5 mg/kg/min at all times. 2) After 24 hours of therapeutic hypothermia, if the infant is physiologically stable, the attending may initiate non-nutritive feeding of 10 mL/kg/day with mother's milk. This should not be advanced until after rewarmed.
Respiratory	1) Ventilator Support – provide any respiratory support as needed Avoid hypocapnia, and hyperoxia. ABG q 8-12h min, TCOM in patients with respiratory support. 2) Maintain air humidifier in normothermic range (37ºC)
Infectious Disease	1) Evaluate for Suspected Sepsis – obtain blood culture and start antibiotics: Ampicillin and Cefepime. Discontinue antibiotics after 48 hours if cultures are negative according to NICU guidelines.
Neurological	1) Request Neurology Consultation, if not already requested 2) Cranial ultrasound to be ordered STAT (No need to wait for HUS to start therapeutic hypothermia) 3) Sedation: maintain adequate sedation with Morphine. The following guideline can only be deviated from with attending approval • Loading dose 0.05 mg/kg IV (repeat PRN x 1 for shivering, severe irritability, tachycardia HR > 120). • Start continuous infusion: 0.01 mg/kg/hr IV drip. DO NOT INCREASE THE INFUSION RATE. • Reduce rate to 0.005 mg/kg/hr after 12 hours. 4) Neuromonitoring: aEEG or cEEG must be on for the entire 72hours and until 6 hours after rewarming. • aEEG on admission • NIRS on admission and through rewarming. • cEEG ordered stat by neurology, cEEG tech expected to arrive at hour 2-3 of cooling • Continue full channel EEG for 24 hours or longer if seizures detected ○ If no seizures and EEG recording considered low risk, switch to aEEG after 24 hours (refer to aEEG CPG for details). 5) Seizure control (Refer to Neonatal Seizure CPG for further details) • 1st choice Phenobarbital ○ Load: 20 mg/kg IV ○ If seizures persist: additional doses of phenobarbital 5-20 mg/kg IV (Max 40 mg/kg) ○ Level 2-12 hours post-load may be useful; typical therapeutic range 10-40 mcg/mL ○ Additional phenobarbital if level subtherapeutic • If 2nd agent required: Fosphenytoin 20 mg/kg load • If 3rd agent required: Midazolam – load with 0.15 mg/kg IV and then infusion of 0.05 mg/kg/hour , • If 4th agent rquired: Levetiracetam 40 mg/kg IV x 1 (May consider additional boluses of 20 mg/kg to a total of 80 mg/kg) • (Refer to Neonatal Seizures Clinical Practice Guideline) 6) MR imaging (NICU MRI Guidelines) • If considering re-direction of care or early Exit, obtain MRI after 24-48 hours. • Routine MRI– HIE protocol on DOL #4 (after re-warming) • Follow-up MRI on/after DOL #10- #21.
Skin	1) Monitor for subcutaneous fat necrosis (erythema, purple color, painful nodules, especially on the back and buttocks). May occur during hypothermia or after rewarming. 2) If present monitor for hypercalcemia.
Laboratory/ blood work	Suggested minimal lab plan: • On admission: CBC, PT, PTT, INR, Fibrinogen, BMP, Mg, P, ALT, AST, glucose, Blood gas with lactate, Blood culture • 12 hours of life: BMP, Mg, P, ALT, AST, glucose • 24 h of life: CBC, PT, PTT, INR, Fibrinogen, BMP, Mg, P, ALT, AST, glucose • Daily BMP • ABG every 8-12 hours or as needed in patients receiving respiratory support • As needed: Phenobarbital levels, urine and meconium toxicology. • Placenta pathology. Page L&D Charge Nurse to ensure placenta is sent to path. The admitting resident or NP/PA will email the mother's name and MRN to: HIEPlacenta@partnershealthcare.onmicrosoft.com indicating that baby is receiving TH.
Documentation	1) Document parents discussion using .NICUHYPOTHERMIADISCUSSION 2) Complete Neonatal Encephalopathy Exam score on admission then daily, until rewarming and discharge. .NICUENCEPHALOPATHYEXAMWITHSCORE 2)Complete aEEG report on admission and then daily. .NICUAEEGREPORT
Follow up and discharge	1)BWH NICU Follow Up at 2-4 weeks. Enter order in Epic on admission 2)BCH Neurology Follow Up- Neurology NP will schedule appointment at at 3-4 months 3 Review results of placenta pathology with OB and recommend parents to follow up with their provider at postpartum visit.