UNITYPOINT HEALTH – DES MOINES

GUIDELINE OF CARE

MATERNITY SERVICES

GUIDELINE TITLE: Normal Newborn and Special Care

In addition to these guidelines refer to:

- Clinical Skills
  - Skin-to-Skin Contact (Neonatal)
  - Thermoregulation: Delivery Room Care, Radiant Warmers, and Double-Walled Incubators (Neonatal)
  - Newborn Security (Maternal-Newborn)
  - Apgar score (Neonatal)
  - Admission Assessment (Neonatal)
  - Eye Prophylaxis (Maternal- Newborn)
  - Vitamin K (Maternal-Newborn)
  - Hepatitis B Immunoprophylaxis (Maternal- Newborn)
  - Medication Administration: Oral (Pediatric)
  - Gestational Age Assessment (Maternal-Newborn)
  - Clinical Skills - Newborn Care Education (Maternal-Newborn)
  - Developmental Care (Neonatal)
  - Skin Assessment (Neonatal)
  - Cord Care (Maternal-Newborn)
  - Newborn Bath (Maternal-Newborn)
  - Clinical Skills: Circumcision (Maternal Newborn)
  - Circumcision Care (Maternal-Newborn)
- Guidelines:
  - Neonatal Care of the Late Preterm Guideline
  - Maternity Services Departmental Security Plan

I. Initiate Well Newborn Admission Protocol at time of delivery.

II. Delivery/ Stabilization

a. Assess and record:

i. History: maternal, fetal and newborn

a) Scan mother's prenatal record into chart

ii. Time of delivery

iii. Maternal/ neonatal risk factors: prenatal, intrapartum and delivery

a) Enter treatment team sticky note into the EMR using nblistnurse and any other pertinent information relating to the history or assessment

b. Personnel at delivery

i. Refer to Neonatal: High Risk Delivery and Post Delivery Care Guideline

c. Resuscitation and stabilization

i. Refer to Neonatal Resuscitation Program 7th Edition (2016)

ii. T-piece resuscitator set up per gestational age:

	≤30 Weeks	31-34 Weeks	≥35 Weeks
Flow Rate	12 LPM	12 LPM	12 LPM
FiO2	30%	30%	21% (room air)
PIP	15	20	20
PEEP	5	5	5

iii. Oxygen is initiated and titrated as needed per gestational age
   a) Oxygen is initiated at:
      a. 30% if gestational age is < 35 weeks
      b. 21% (room air) if gestational age is ≥ 35 weeks
   b) Target oxygen saturations:

Targeted Pre-ductal SpO2 After Birth	
1 min	60-65%
2 min	65-70%
3 min	70-75%
4 min	75-80%
5 min	80-85%
10 min	85-95%

   c) Within the first 10-20 minutes of life, the newborn should transition to post-delivery targeted oxygen saturations as defined per gestational age:

Gestational Age	Target Saturation	Alarm Limits
<32 weeks	90-95%	87-98%
32-37 weeks (in oxygen)	92-96%	89-99%
32-37 weeks (in room air)	92-96%	90-100%
>37 weeks	95-97%	92-100%
For Persistent Pulmonary Hypertension (PPHN) or Congenital Cyanotic Heart Disease – oxygen per order of healthcare provider.		

   d) Cardiorespiratory monitor and/or pulse oximetry
      a. When clinical condition or resuscitation guidelines warrant (i.e., during resuscitation/stabilization, respiratory distress, oxygen is initiated)
      b. For unstable newborns, cardiopulmonary monitoring is needed until they have had no events for at least 24 hours (clinically stable)
   e) Alarm limits may be altered by provider order as indicated for other specific health conditions (i.e., newborn is in 21% oxygen).
   f) When oxygen need is prolonged refer to:
      a. Unity Point Health Des Moines Blank Children's Hospital Scope of Service Maternity Services
      b. ILH and MWH refer to Level II Nursery information below

III. Provider notification and consultation of NICU
   a. Notify the healthcare provider of birth within 2 hours of delivery. Include the following: newborn's birth time (date if indicated), name, and significant history or physical findings. Document communication in the EMR.
   b. NICU Team Support- NNP, NICU transport nurse, Neonatologist, etc.
      i. If the newborn's status changes within the first 30 minutes of life and the newborn's healthcare provider has not been notified of birth, NICU team may be consulted at nurses' discretion. If the newborn's provider has been notified, then the healthcare provider should consult the neonatologist on call.
      ii. NICU team may be consulted by the primary healthcare provider any time the newborn's provider has concerns, condition changes suddenly or when the newborn has an emergent health care need (examples: seizures, apnea, bleeding).
         a) Healthcare Provider should place an inpatient consult to neonatology in the EMR.
         b) The healthcare provider will be updated regarding newborn's condition by the neonatologist on call.

IV. Nursing Assessment/Care

a. Gestational age appropriate care
    i. 35 0/7 - 36 6/7 weeks (Late Preterm)
    ii. 37 0/7 - 37 6/7 (Near Term) – pump after feeding per Breastfeeding guidelines. Discuss with provider need to follow Late Preterm Guidelines and/ or delay bath
    iii. 38 0/7 - 41 6/7 (Term)
b. Care is family-centered and developmentally supportive
c. Vital signs/ Neonatal Assessment/ Measurements/ Documentation – See Appendix A
d. Skin Care
    i. Prep – Chlorhexidine scrubs or pads (2% or less) are used for skin decontamination prior to venipuncture or heel stick (exception: dried blood spot screens- alcohol should be used).
    ii. Oral care - If NPO or gavage feeding, provide oral care with cares. Colostrum, breastmilk or sterile water may be used.
e. Feeding
    i. Breastfeeding, Refer to Breastfeeding Guidelines
    ii. Bottle feeding, Refer to Clinical Skills- Formula Feeding Education (Maternal Newborn)
    iii. Gavage feeding
        a) Refer to Feeding Tube: Enteral Nutrition (Neonatal)
        b) Decision is based on newborn's clinical status.
        c) Provider order is not needed; however, provider should be made aware newborn requiring gavage feeding.
        d) Parents should be informed of need to gavage
        e) Document: reason for gavage, depth of insertion, placement check
        f) Gavage tube placement.
            a. Indwelling NG/OG feeding tubes are changed weekly and PRN
            b. Newborns on oxygen: An OG is **preferred** due to increased risk of airway compromise/occlusion
            c. Nasally inserted tubes should not occlude more than 60% of the nares
f. Safety
    i. Safety checks are performed once a shift or with change in caregiver
        a) ID band correct and in place
        b) Self-inflating bag and/ or T-piece resuscitation device, suction/ suction catheter, and bulb syringe are tested once a shift and readily available
        c) If applicable: alarm parameters for cardiorespiratory monitor and pulse oximeter correct and set, IV fluids and rates are as ordered, IV access, status of line and site are checked, radiant warmer rails are up and in locked position. Incubator door(s) and portholes are closed
    ii. Safe sleep recommendations are followed:
        a) Newborn sleeps in supine position
        b) HOB should be flat. Do not elevate the head of crib or bassinette.
        c) There should not be any extra blankets, stuffed animals, etc. in the crib.
        d) Please refer to Safe Sleep Policy for further details.
    iii. Newborn falls – refer to Neonatal Risk for Fall/ Drop

V. **Level II Nursery Care:**
a. Level 2 defined in the Maternity Scope of Service.
b. Family centered, providing care in patient room.
    i. Infant warmer with T-piece resuscitation device/ Self-inflating bag will remain in the room (see safety check)
c. Vital signs/ Neonatal assessment/ Measurements/ Documentation – See Appendix A
d. Cardiorespiratory monitor and/or pulse oximetry
    i. When clinical condition or resuscitation guidelines warrant (i.e., during resuscitation/stabilization, respiratory distress, oxygen is initiated)

ii. For unstable newborns, cardiopulmonary monitoring is needed until they have had no events for at least 24 hours (clinically stable)
iii. For newborns on 48 hours antibiotics for possible sepsis, if they are clinically stable and maintaining their heart rates and O2 sat within the acceptable range for 24 hours, monitors can be discontinued
iv. Change pulse oximeter site and servo probe site at least every 8 hours, replacing as needed. Replace cardiorespiratory monitor leads as needed.
v. Validate monitor vitals in EMR based on patient condition.

VI. IV and/or saline lock

a. Vital signs – See Appendix A
a. All IV tubing must be labeled with the time and date that it was hung.
b. Document rates every 12 hours, with change in caregiver, change of rate and when a fluid is stopped or restarted. Document volume infused, clear pumps and verify volumes infused Q8 hours at 0600, 1400, 2200, change of bag or when discontinuing a fluid.
a. Antibiotic administration
iv. Gold standard for initiation of antibiotics is within 1 hour
v. All doses should be checked by two RNs in Maternity Services – Refer to BCH Medications: Double Checking
vi. Gentamicin (Aminoglycoside) administration per order
a) Dose: 4 mg/Kg IV every 24 hours for newborns 35 weeks or greater. Note dose frequency may change depending on laboratory values and patient urine output, etc.
b) Administer IV over 30 minutes on a pump
c) Place on accurate intake and output while on antibiotics.
d) If receiving more than 2 doses of aminoglycoside:
a. Draw trough level 30 minutes BEFORE 3rd dose is due. Normal trough is: 0.5-1 mcg/mL
b. HOLD 3rd dose of gentamicin until trough level has been reviewed by healthcare provider and approval to give third dose has been obtained. Notify provider and document.
c. Draw peak level 30 minutes after 3rd dose is infused. Normal peak is 5-12 mcg/mL
d. Creatinine levels should be assessed if more than 2 doses are ordered. Normal creatinine is less than 1 mg/dL
e) Adverse effects – nephrotoxicity, ototoxicity, neurotoxicity, pain, venous irritation and/or soft tissue injury at IV site/injection site, elevated liver enzymes
vii. Ampicillin
a) Dose: 100 mg/kg/dose (based on birthweight) every 12 hours
b) Administer IV over 30 minutes on a pump. May push over 3-4 minutes if necessary
c) Adverse effects are rare but may include: rash, GI discomfort (including diarrhea, nausea, vomiting) over growth of Clostridium Difficile with longer therapy
viii. Notify healthcare provider, clarify/confirm plan of care:
a) After lab values drawn and results are available
b) Urine output is less than 1 mL/kg/hr
c) Any adverse effects noted
b. Oxygen delivery, per NICU #24: Oxygen and Airway Management
i. A healthcare provider needs to be notified and order obtained for oxygen requirement.
ii. Oxygen titration is routinely performed to maintain pulse oximetry within a specified range correlating with post conceptual age. Alarm limits are set corresponding to the target saturation.

iii. In event of transport to the nursery, consistent respiratory support will be made during the transport and upon arrival to the nursery.
iv. Oxygen
    a) FiO2 should not be adjusted by more than 2-5% at a time, unless newborn quickly deteriorating
    b) Notify provider If newborn requires sustained FiO2 increase of 10% or more or is having recurrent desaturations, apneas and/or bradycardia episodes.
    c) Saturation alarms are not to be adjusted without consulting provider
v. Cannula/ RAM prong care consideration
    a) Prongs should not touch the nasal septum
    b) Assess condition of skin every 2-4 hours and as needed.
    c) Use nasal septum barrier on skin to reduce risk of skin breakdown.
    d) Notify provider if skin/ tissue breakdown is assessed.
vi. Low Flow nasal cannula – 2 L/min or less
    a) Cannula should be dated and changed every 7 days
    b) Document settings with assessment and PRN
    c) Start 2L NC with bubbler
    d) FiO2 should be weaned to maintained appropriate oxygen saturation >90%
    e) Max FiO2 40%
    f) If on 2L NC for much longer than ~6hrs, could consider changing to high flow nasal cannula.
vii. CPAP
    a) Start on CPAP +5 to +7
    b) If able to wean FiO2, can go down to +5 or to room air (ie term kid with TTN likely could go right to room air).
    c) If on CPAP with FIO2 >40% and not able to wean for ~ 6 hours may need further interventions.
    d) No oral feeds
    e) OG open to air for venting of air in stomach if NPO with CPAP
    f) Elevate syringe barrel above level of the head
    g) Cannula should be dated and changed every 7 days
    h) RAM prongs are changed every 14 days
    i) Document settings hourly
viii. High flow nasal cannula (Vapotherm),
    a) Start at ~ 3-4L. (Max of 6LPM)
    b) Can try if newborn has hypoxia but normal work of breathing and respiratory rate
    c) Term newborns you can usually try off CPAP and then if fails, could do vapotherm or nasal cannula to facilitate oral feeds (if RR<70 and easy WOB).
    d) No oral feeds if on 3 liters or more
    e) Cannula should be dated and changed every 7 days
    f) Document settings hourly
ix. Suctioning and suction device use
    a) Nasal/oral suction catheters and nasal aspirators other than bulb syringe should be changed every 8 hours if used

VII. Discharge - regardless of age, the following should be met prior to discharge:
a. Orders obtained from healthcare provider
b. Newborn criteria to be met prior to discharge:
    i. Age: Newborn should be a minimum age of 24 hours or more.
    ii. Weight:
        a) Obtained just prior to discharge if prior to day 2 of life
    iii. Assessment: Variations and abnormalities have been addressed by healthcare provider.
    iv. Physiologic stability: normal vital signs for 12 or more consecutive hours

a) Thermal stability (97.7-99.3°F) in crib with appropriate clothing.
b) Respiratory rate below 60 per minute and without signs of respiratory distress
c) Heart rate (HR) 100-190 beats/minute; HR as low as 70 beats/minute when sleeping quietly without signs of circulatory compromise and responds appropriately to stimulation is acceptable. Sustained HR near or above 190 beats per minute should be evaluated.

v. Glucose: normoglycemic state has been maintained if hypoglycemia was a risk or identified
vi. Elimination: above criteria for voiding and stooling has been met.
vii. Feeding:
a) At least 2 consecutive successful feedings with assessment
viii. Circumcision: homeostasis has been maintained, no evidence of excessive bleeding from circumcision for at least 2 hours.
ix. Jaundice: risk of hyperbilirubinemia has been assessed and appropriate management and/or follow up plan of care initiated
x. Sepsis: assessment for sepsis, risk of sepsis, clinical monitoring and evaluation have been completed per guidelines.
xi. Testing and Screening:
a) Testing for exposure to maternal substances (legal/illegal) has been completed per procedure (i.e., urine toxicology and umbilical cord testing)
b) Neonatal laboratory values ordered have been reviewed (i.e., umbilical cord blood testing, direct Coombs).
c) Hearing screen has been completed. If newborn did not pass hearing screen, retesting has been arranged
d) CMV screening has been obtained per Well Newborn Protocol if newborn fails the hearing screen or there are clinical indicators of CMV – see Appendix B
e) Newborn dried blood spot screen has been drawn and if prior to 24 hours, rescreening has been set up.
f) Critical Congenital Heart Disease screening completed. If the CCHD screening was completed prior to 24 hours of age, arrange for rescreening with provider.
g) Car seat pulse oximetry test for positional intolerance if meets criteria (Gestational age less than (<) 37 weeks, birth weight less than (<) 2500 grams or if weight falls below 2500 grams in newborn nursery, Discharged on an apnea monitor or medical condition that puts neonate at risk for apnea or oxygen desaturation when in semi-reclined position
a. Clinical Skills- Newborn Car Seat Safety (Maternal-Newborn)
b. Addendum- Car Seat Pulse Oximetry Test - Inpatient Units
c. If neonate fails test and is discharged home in car bed, order post discharge car seat pulse oximetry test per procedure. Order for test should read: Car Seat Test for airway integrity, once after discharge.
d. Notify clinic performing testing of order per Car Seat Pulse Oximetry Test- Addendum
xii. Parent/guardian are aware of post discharge follow up needs. It is preferred that the appointment has been made by the parent/guardian prior to discharge.
xiii. Parent/guardian are aware of patient portal and have initiated proxy access for the newborn.

c. Following factors have been reviewed and addressed as needed:
i. Maternal immunization has been provided if not previously immunized per guidelines (i.e., influenza, pertussis).
ii. Other family members have been immunized as appropriate (i.e., pertussis, influenza)
iii. Characteristics of mother-newborn dyad – interaction and attachment

iv. Social service, home health, and follow up referrals have been made as indicated (i.e., age of mother and support services at home have been considered)

d. Follow up:
    i. Follow up with primary care provider within 24-72 hrs.
    ii. Referrals to specialty care have been completed if needed.
    iii. Follow up testing needs are provided to the mother/guardian with discharge information.
    iv. Referral to lactation consultant has been made as indicated
e. Neonatal identification is completed and documented

APPENDIX A: Neonatal Assessment/ Documentation

	Neonatal Assessment/ Documentation *Notify provider of abnormal vital signs and changes in baseline.*
Focused Assessment • Axillary temp (97.7-99.4) • Apical pulse (100-160) • Respiratory rate (30-60) • Color • Cap refill • LOC • Tone • Activity *Apical heart rate and respiratory rate are counted for a full minute.*	**Initial set, then every 30 min x 4 (Transition) until stable for 2 hours** **Every 4 hours until 24 hours of age** **Every 8 hours until discharge*** ***If applicable refer to vital sign frequency in Late Preterm and Assisted Delivery*** **If Temp < 97.7°F (36.5°C)**, warm to 98°F (36.7°C) • Place newborn skin to skin with parent (if possible and maternal temp >97.7°F (36.5°C) or under radiant warmer on servo mode; monitor temperature every 30 minutes until returns to normal range, review risk factors. Notify the Healthcare Provider if the newborn's core temperature remains at less than 97.7°F/36.5°C) or the core temperature is greater than 99.5°F (37.5°C) despite nursing interventions • Continue to monitor temp q1hr x2 after warming newborn to 98°F (36.7°C). **B/P** taken in right upper arm with correct sized cuff if parameters met: Clinical Skills: Blood Pressure Measurement (Pediatric) Assess *when the following conditions present* • If delivery was assisted with vacuum, forceps delivery or head edema suspicious of subgaleal hemorrhage assess per Assisted Delivery Procedure • Infection, illness or respiratory distress • Mottling, pallor, poor perfusion or prolonged capillary refill with central refill > 4 seconds. Perform BP at least every 30 minutes until stable for 2 hours. • Weak pulses or tachycardia • Murmur or suspected congenital heart disease. Perform BP on all 4 extremities- notify provider for further orders • Renal disease/anomalies – at admission and daily Perform at 24 hours of life if newborn is stable and meets below criteria: • Multifetal pregnancy – all newborns • Suspected or known fetal-maternal transfusion or reverse flow
Pulse Ox	Critical Congenital Heart Disease Screening (CCHD Screen obtained after 24 hours of age in right hand and either foot.)
In Oxygen	• Cardiorespiratory monitor and/ or pulse ox • **Verify and document monitor vitals (HR, RR, Sats)** hourly • **Focused Assessment** q 3-4 hours with feedings, q 4 if NPO • **Oxygen documentation-** device, liter flow, FiO2 with Focused Assessment or w/changes • **Blood pressure** within an hour of admission and every 8 hours
On antibiotics	• Cardiorespiratory monitor and/ or pulse ox as ordered • **Focused Assessment** q 3-4 hours with feedings • **Blood pressure** within an hour of admission and daily
Oral Narcotics Administered	HR and RR: baseline prior to administration, then hourly x4
Pain	Clinical Skills- Pain assessment and Management (Neonatal) Neonatal Newborn Pain Scale- NIPS: • With vitals if no pain is observed • Every 4 hours and PRN if in oxygen or on nasal cannula • Hourly if pain is present and within 1 hour of intervention for pain • Circumcision- see checks at bottom of table

Blood Sugar/ Accucheck	Normal Newborn- per Well Newborn Protocol: Hypoglycemia algorithm
	Level 2 Nursery: Glucose- per NICU standards of care
	• Every hour until 3 values are ≥60, if less than 60 notify provider
	• If on IV fluids:
	  ○ Within 1H of initiating or bag change.
	  ○ With rate change, check with next cares.
	  ○ Notify provider if <60, If ≥60 check Q12H and PRN
	  ○ After discontinuation of IVF, obtain POCT glucose before feedings until ≥ 60 x 2 (notify provider if < 60).
	• NPO
	  ○ Within 1H of initiating or changing, <60 notify provider, if ≥60 Q8H

Measurements Fenton for < 37 weeks WHO for >/= 37 weeks	Weight- Obtained after birth and daily. • Weight loss of more than 3% per day or 7% during hospitalization is reported to the healthcare provider and a feeding plan is defined as indicated. Follow up within 24-72 hours of discharge is recommended with the primary care provider. OFC (occipital frontal circumference)- Largest circumference is obtained • Obtained after birth, per Assisted Delivery Assessment of the Newborn, and weekly if length of stay is extended Length (crown to heel)- after birth and weekly if length of stay is extended Chest circumference- after birth Abdominal girth- (measured at umbilicus) • Level 2: on admission then daily until the newborn is discharged • If abdominal distention or repeated emesis is present
Physical Assessment	At delivery/birth and every shift/ change in caregiver, if level II status perform physical assessment prior to feedings/ every 3-4 hours or more frequently if change in condition. Daily Weight
Nutrition Screen	On admission
Fall Risk/ Prevention	On admission and every shift/ change in caregiver
Braden/ Skin Assess	Every shift/ change in caregiver. Skin to skin at least once a shift (and document) If at risk for skin breakdown, complete Neonatal Skin Risk Assessment Scale (NSRAS©): • Add row/ group for charting in the EMR • Within 4 hr of birth/admission to higher level of care. Cont to assess q shift or w/change in caregiver • Score ≥13 indicates increased risk for pressure ulcer, if ≥13, document every 4 hours until <13. • List of risk factors for skin breakdown in Clinical Skills- Skin Assessment (Neonatal)
Care Plan	Initiate upon Birth/Delivery Review and chart towards goal every shift/ change in caregiver
Education	Chart on at least 1 topic every shift/ change in caregiver
IV/ Saline Lock (if applicable)	Assess site hourly and document with cares and PRN. If signs and symptoms of infiltration document Montgomery Score. Saline lock- flush with 1mL of 0.9% Normal Saline every 3- 4 hours and PRN.
I/O	Document feeding- breastmilk/ formula Document voids/ stools as occur- first should be within 24hrs (notify provider if not or if abnormal/ unusual) If IV-accurate I&O documentation needed (including IV flush, lab draws, etc), weigh diapers, ask provider if weighing pre/post feedings is needed
Newborn Care (Bath/ Circs)	**Admission bath** given after 12hrs and thermoregulation achieved/ VS/ Assessment WNL; best to hold bath until after transition; for LPT delay for 24 hours; bathe immediately if HIV/ Hepatitis/ Covid exposed **Circumcision** Obtain pulse ox prior (document) prior to circ. Circ checks (include NIPS) q 15min x1 hr, q 30min x 1hr, the hourly x2 (Total = 4 hrs) PRN with every diaper change. Do not d/c prior to 4 hours post circumcision.

APPENDIX B: CMV SCREENING

Identify Risk for CMV:

Failed hearing screen- If neonate fails 2 hearing screens, fails to pass both ears simultaneously, or will be discharged before first failed hearing screen can be repeated

OR

Clinical Symptoms

Petechiae or purpura, Intrauterine growth restriction, head circumference less than 3rd percentile (microcephaly), intracranial calcification, thrombocytopenia (platelets less than 100,000), enlarged liver or spleen, early jaundice in the first 24 hours or prolonged jaundice (longer than 14 days).

- If failed hearing screen:
  - Perform PCR saliva testing for CMV (Epic: CMV by PCR Qual non-blood LAB236).
  - Notify provider and discuss consultation with Pediatric Infectious Disease.
- If symptoms notify and discuss with provider:
  - Presence of symptoms and discuss need for PCR saliva testing for CMV (Epic: CMV by PCR Qual non-blood LAB236).
  - Possible need for consultation with Pediatric Infectious Disease.
- Consent to screen is not needed but the parent can refuse. If parent refuses:
  - Parent must sign the "Refusal of Testing for Congenital Cytomegalovirus" from the Iowa Department of Public Health. https://idph.iowa.gov/Portals/1/userfiles/35/Refusal%20of%20cCMV%20testing%201-5-18.pdf
  - Follow these steps with the refusal form:
    - Place a patient label in the lower right corner.
    - Fax a copy of the refusal form to the IDPH within 6 days. Fax number is: 515-725-1760.

Provide education for parent(s) when screening is done using the Cytomegalovirus (CMV) Information for Parents Brochure

cCMV screen is POSITIVE

Prior to discharge:

- Provider should notify parent(s).
- Refer to AEA and other community resources.
- Consult with Infectious Disease physicians.

If cCMV Screen is NEGATIVE:

Prior to discharge:

- Inform parent(s).