Stony Brook Pediatrics

Neonatal Intensive Care Unit

Level-Based Goals and Objectives

Primary Goals for this Rotation	Competencies
GOAL I: Perinatal Prevention. Understand the pediatrician's role in and become an active advocate for programs to reduce morbidity and mortality from high-risk pregnancies.	
PL-1: 1. Identify and describe strategies to reduce fetal and neonatal mortality, including use of group B strep prophylaxis, antenatal steroids.	K, PC
PL-2 (a, b, c); PL-3 (d): 2. Understand and know how to access:	
a) Basic vital statistics that apply to newborns (neonatal and perinatal mortality, etc)	K, PC, SBP
b) Prenatal services available in one's region	K, PC, SBP
c) Tests commonly used by obstetricians to measure fetal well-being	K, PC, SBP
d) Neonatal transport systems	K, PC, SBP
PL-1: 3. Describe effective intervention programs for teens and other high-risk mothers.	K, SBP
4. PL-1: Recognize potential adverse outcomes for the fetus and neonate of common prenatal, perinatal and postnatal conditions, and **PL-2:** demonstrate the pediatrician's role in assessment and management strategies to minimize the risk to the fetus and/or newborn in the following situations **PL-3:** demonstrate the pediatrician's role in assessment and management strategies to minimize the risk to the fetus and/or newborn in the following situations, and other potentially rarer conditions a) Maternal infections/exposure to infection during pregnancy b) Fetal exposure to harmful substances (alcohol, tobacco, environmental toxins, medications, street drugs) c) Maternal insulin-dependent diabetes and pregnancy-induced glucose intolerance d) Multiple gestation e) Placental abnormalities (placenta previa, abruption, abnormal size, function) f) Pre-eclampsia, eclampsia g) Chorioamnionitis h) Polyhydramnios i) Oligohydramnios j) Premature labor, premature ruptured membranes	K, PC

k) Complications of anesthesia and common delivery practices (e.g., Caesarian, vacuum, forceps assisted, epidural, induction of labor) l) Fetal distress during delivery m) Maternal blood group incompatibilities n) Other common maternal conditions having implications for the infant's health such as lupus, HELLP syndrome, maternal thrombocytopenia	
GOAL II: Resuscitation and Stabilization (NICU). Assess, resuscitate and stabilize critically ill neonates.	
PL-1 & PL-2: Manage patients with close faculty guidance **PL-3**: Manage patients proficiently requiring less faculty guidance 1. Explain and perform steps in resuscitation and stabilization, particularly airway management, vascular access, volume resuscitation, indications for and techniques of chest compressions, resuscitative pharmacology and management of meconium deliveries.	K, PC
PL-1: 2. Describe the common causes of acute deterioration in previously stable NICU patients.	K
PL-1 & PL-2: Manage patients with close faculty guidance **PL-3**: Manage patients proficiently requiring less faculty guidance 3. Function appropriately in codes and neonatal resuscitations as part of the NICU team by: a) Participating in resuscitations b) Completing Neonatal Resuscitation Program (NRP) or comparable training c) Using neonatal resuscitation drugs appropriately	K, PC, IPC, P
PL-1, PL-2 and PL3: Under the direct supervision of a Neonatologist, Resuscitation and Stabilization Skills with be practiced by use of experiential learning at the clinical skill center sessions	K, SBP, IPC
GOAL III: Common Signs and Symptoms (NICU). Evaluate and manage, under the supervision of a neonatologist, common signs and symptoms of disease in premature and ill newborns.	
Under supervision, evaluate and manage patients with the signs and symptoms that present commonly in the NICU (examples below). **PL-1**: Evaluate and manage routine cases **PL-2**: Evaluate and manage moderately complex cases **PL-3**: Evaluate and manage moderately complex and rare cases	
1. General: feeding problems, history of maternal infection or exposure, hyperthermia, hypothermia, intrauterine growth failure, irritability, jitteriness, large for gestational age, lethargy, poor post-natal weight gain, prematurity (various gestational ages)	K, PC

2. Cardiorespiratory: apnea, bradycardia, cyanosis, dehydration, heart murmur, hypertension, hypotension, hypovolemia, poor pulses, respiratory distress (flaring, grunting, tachypnea), shock	K, PC
3. Dermatologic: birthmarks, common skin rashes/conditions, discharge and/or inflammation of the umbilicus, hyper- and hypopigmented lesions, proper skin care for extreme prematures	K, PC
4. GI/surgical: abdominal mass, bloody stools, diarrhea, distended abdomen, failure to pass stool, gastric retention or reflux, hepatosplenomegaly, vomiting	K, PC
5. Genetic/metabolic: apparent congenital defect or dysmorphic syndrome, metabolic derangements (glucose, calcium, acid-base, urea, amino acids, etc.)	K, PC
6. Hematologic: abnormal bleeding, anemia, jaundice in a premature or seriously ill neonate, neutropenia, petechiae, polycythemia, thrombocytopenia	K, PC
7. Musculoskeletal: birth defects and deformities, birth trauma and related fractures and soft tissue injuries, dislocations	K, PC
8. Neurologic: birth trauma related nerve damage, early signs of neurologic impairment, hypotonia, macrocephaly, microcephaly, seizures, spina bifida	K, PC
9. Parental stress and dysfunction: anxiety disorders, child abuse and neglect, poor attachment, postpartum depression, substance abuse, teen parent	K, PC
10. Renal/urologic: abnormal genitalia, edema, hematuria, oliguria, proteinuria, renal mass, urinary retention	K, PC
GOAL IV: Common Conditions (NICU). Recognize and manage, under the supervision of a neonatologist, the common conditions in patients encountered in the NICU.	
Under supervision, evaluate and manage patients with conditions that present commonly in the NICU (examples below): **PL-1**: Evaluate and manage routine cases **PL-2**: Evaluate and manage moderately complex cases **PL-3**: Evaluate and manage moderately complex and rare cases 1. General: congenital malformations 2. Cardiovascular: cardiomyopathy, congenital heart disease (cyanotic and acyanotic--e.g., common disorders such as patent ductus arteriosus, ventricular septal defect, tetralogy of Fallot, transposition of the great arteries), congestive heart failure, dysrhythmias (e.g. supraventricular tachyarhythmia, complete heart block), pericarditis 3. Genetic, endocrine disorders: abnormalities discovered from neonatal screening programs as they affect the premature infant, common chromosomal anomalies (Trisomy 13, 18, 21, Turner's), inborn errors of metabolism, infant of a diabetic mother, infant of a mother with thyroid disease (e.g. maternal Graves Disease), uncommon conditions such as congenital adrenal hyperplasia, hypothyroidism, hyperthyroidism 4. GI/nutrition: biliary atresia, breast feeding support for mothers and infants with special needs (high risk premature, maternal illness, multiple birth, etc.), complications of umbilical catheterization, gastroesophageal reflux, growth retardation, hepatitis, hyperbilirubinemia, meconium plug, necrotizing enterocolitis, nutritional management of high-risk neonates or those with special needs (cleft lip/palate, other facial anomalies, etc.)	K, PC

5. Hematologic conditions: coagulopathy of the newborn, erythroblastosis fetalis, hemophilia, hyperbilirubinemia, splenomegaly 6. Infectious disease: central line infections, Group B Streptococcal infections, hepatitis, herpes simplex, immunization of the premature neonate, infant of mother with HIV, intrauterine viral infections, neonatal sepsis and meningitis, nosocomial infections in the NICU, syphilis, varicella exposure 7. Neurologic disorders: central apnea, CNS malformations (e.g. encephalocele, porencephaly, holoprosencephaly), drug withdrawal, hearing loss in high risk newborns (prevention and screening), hydrocephalus, hypoxic-ischemic encephalopathy, intraventricular hemorrhage, retinopathy of prematurity, seizures, spina bifida 8. Pulmonary disorders: atelectasis, bronchopulmonary dysplasia, meconium aspiration, persistent pulmonary hypertension of the newborn, pneumonia, pneumothorax, respiratory distress syndrome, transient tachypnea of the newborn 9. Renal: acute renal failure, hematuria, hydronephrosis, oliguria, proteinuria 10. Surgery [assess and participate in management under supervision of a pediatric surgeon or cardiac surgeon]: congenital heart disease, (cyanotic, patent ductus arteriosus, obstructive left-sided cardiac lesions, pre-operative care), esophageal or gut atresia, gastroschisis, omphalocele, intestinal obstruction, necrotizing enterocolitis, perforated viscus, Pierre Robin syndrome, volvulus	
GOAL V: Diagnostic Testing (NICU). Under the supervision of a neonatologist, order and understand the indications for, limitations of, and interpretation of laboratory and imaging studies unique to the NICU setting.	
1. Demonstrate understanding of common diagnostic tests and imaging studies used in the NICU by being able to:	
PL-1: a) Explain the indications for and limitations of each study.	K
PL-1: b) Know or be able to locate readily gestational age-appropriate normal ranges (lab studies).	K, PC
PL-2 & PL-3: c) Recognize cost and utilization issues.	K, PC, SBP
PL-2 & PL-3: d) Interpret the results in the context of the specific patient.	K, PC
PL-2 & PL-3: e) Discuss therapeutic options for correction of abnormalities.	K, PC
2. PL-1: Use appropriately the following evaluations that may have specific application to neonatal care: **PL-2 & PL-3:** Use appropriately *and interpret* the following evaluations that may have specific application to neonatal care: a) Serologic and other studies for transplacental infection	K, PC, SBP

b) Direct and indirect Coomb's tests c) Neonatal drug screening d) Cranial ultrasound for intraventricular hemorrhage e) Abdominal X-rays for placement of umbilical catheter f) Chest X-rays for endotracheal tube placement, air leak, heart size, and vascularity	
3. Pl-1: Use appropriately the following laboratory tests when indicated for patients in the neonatal intensive care setting: **PL-2 & PL-3:** Use appropriately *and interpret* the following laboratory tests that may have specific application to neonatal care: a) CBC with differential, platelet count, RBC indices b) Blood chemistries: electrolytes, glucose, calcium, magnesium, phosphate c) Renal function tests d) Tests of hepatic function (PT, albumin) and damage (liver enzymes, bilirubin) e) Serologic tests for infection (e.g., hepatitis, HIV) f) CRP g) Therapeutic drug concentrations h) Coagulation studies: platelets, PT/PTT, fibrinogen, fibrin split products, D-dimers, DIC screen i) Arterial, capillary, and venous blood gases j) Detection of bacterial, viral, and fungal pathogens k) Urinalysis l) CSF analysis m) Gram stain n) Stool studies o) Toxicologic screens/drug levels p) Newborn screening tests	K, PC, SBP
Pl-1: 4. Appropriately use the following imaging or radiographic or other studies when indicated for patients in the NICU setting: **PL-2 & 3:** Appropriately use *and interpret* the following imaging or radiographic or other studies when indicated for patients in the NICU setting: a) Chest X-ray b) Abdominal series c) CT scans d) MRI e) Electrocardiogram and echocardiogram f) Cranial ultrasonography	K, PC, SBP

GOAL VI: Monitoring and Therapeutic Modalities (NICU). Understand how to use the physiologic monitoring, special technology and therapeutic modalities used commonly in the care of the fetus and newborn.	
PL-1: For monitoring techniques used in commonly seen cases **PL-2 & PL-3**: For monitoring techniques used in less commonly seen and rare cases 1. Demonstrate understanding of the monitoring techniques and special treatments commonly used in the NICU by being able to: a) Describe the general technique for use in infants. b) Interpret the results of monitoring.	K, PC
Pl-1: 2. Use appropriately the following monitoring and therapeutic techniques in NICU. a) Physiologic monitoring of temperature, pulse, respiration, blood pressure b) Pulse oximetry	K, PC
PL-2 & Pl-3: 3. Demonstrate understanding of the following techniques and procedures used by obstetricians and Maternal Fetal Medicine (MFM) specialists: a) Fetal ultrasound for size and anatomy b) Fetal heart rate monitors c) Scalp and cord blood sampling d) Amniocentesis e) Chorionic villous sampling	K, PC
PL-1 Explain and use commonly ordered treatments and techniques with close faculty guidance **PL-2**: Explain and use commonly ordered treatments and techniques with less faculty guidance; use less commonly ordered treatments and techniques with close faculty guidance **PL-3:** Use and explain less commonly ordered treatments and techniques with faculty guidance, as necessary. 4. Use appropriately the following treatments and techniques in the neonatal intensive care unit under supervision by the attending neonatologist, monitoring effects and anticipating potential complications specific to each procedure. (The degree of supervision should take into consideration the skill required, acuity of the patient, and relative risk of the procedure.) a) Oxygen administration by hood, CPAP or assisted ventilation b) Endotracheal intubation c) Administration of surfactant therapy d) Positive pressure ventilation and basic ventilator management	K, PC

e) Nitric oxide therapy f) Phototherapy g) Umbilical arterial and venous catheterization h) Central hyperalimentation and parenteral nutrition i) Enteral nutrition j) Analgesics and sedatives k) Blood and blood product transfusions l) Vasoactive drugs (pressors and inotropes) m) Judicious use of antibiotics n) Administration of medications specific to the needs of the newborn (e.g., Vitamin K) o) Arterial puncture p) Venous access by peripheral vein q) Umbilical artery and vein catheterization	
Procedures	
GOAL VII: Technical and therapeutic procedures. Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice. **PL-1**: Describe the following procedures; how they work and when they should be used; **PL-2**: Describe the following procedures; how they work and when they should be used; competently perform those commonly used by the pediatrician in practice. **PL-3:** Describe the following procedures; how they work and when they should be used, competently perform those occasionally or rarely used by the general pediatrician in practice.	
Arterial puncture	K, PC
Endotracheal intubation	K, PC
Gastric tube placement (OG/NG)	K, PC
Lumbar puncture	K, PC
Medication delivery: endotracheal	K, PC
Pulse oximeter: placement	K, PC
Suctioning: nares	K, PC
Suctioning: oral pharynx	K, PC
Suctioning: trachea (newborn)	K, PC
Umbilical artery and vein catheter placement	K, PC
Ventilation: bag-valve-mask	K, PC
Mechanical Ventilation: initiation	K, PC
GOAL VIII: Diagnostic and screening procedures. Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.	

PL-1: Describe the following procedures; how they work and when they should be used; perform with direct supervision those commonly used by the pediatrician in practice. **PL-2**: Describe the following procedures; how they work and when they should be used; competently perform those commonly used by the pediatrician in practice with indirect supervision. **PL-3:** Describe the following procedures; how they work and when they should be used, discuss those occasionally or rarely used by the general pediatrician in practice and perform with direct supervision.	
ECG: emergency interpretation	K, PC
Hearing screening	K, PC
Monitoring interpretation: cardiac	K, PC
Monitoring interpretation: pulse oximetry	K, PC
Monitoring interpretation: respiratory	K, PC
Radiologic interpretation: abdominal ultrasound	K, PC
Radiologic interpretation: abdominal X-ray	K, PC
Radiologic interpretation: chest X-ray	K, PC
Radiologic interpretation: cranial US	K, PC
Radiologic interpretation: CT of head	K, PC
Radiologic interpretation: GI contrast study	K, PC
GOAL IX: Under direct supervision of a Neonatologist, understand the pediatrician's role in promoting patient safety and multidisciplinary rounds. Become an active advocate for programs to reduce morbidity and mortality in low birth weight infants.	
PL-1: Understand the patient safety culture and concept of multidisciplinary-family centered rounds in NICU.	SPB, IPC
a) Understand the need for implementing daily goals.	K, PC
PL-2 and PL-3: Understand the pediatrician's role in participating in multidisciplinary rounds with team and discussing daily goals for high risk infants. Understand the evidence-based practice guidelines that exist in assessment and management strategies in preventing major morbidities associated with Low Birth weight infants.	K, PC, IPC,SBP

Core Competencies: **K** - Medical Knowledge
PC - Patient Care and Procedural Skills
IPC - Interpersonal and Communication Skills
P - Professionalism
PBLI - Practice-Based Learning and Improvement
SBP - Systems-Based Practice

Performance Expectations by Level of Training

	Beginning	**Developing**	**Accomplished**	**Competent**
	Description of identifiable performance characteristics reflecting a **beginning level** of performance.	Description of identifiable performance characteristics reflecting **development and movement toward mastery** of performance.	Description of identifiable performance characteristics reflecting **near mastery** of performance.	Description of identifiable performance characteristics reflecting the **highest level** of performance.
Medical Knowledge	PL1	PL1, PL2	PL2, PL3	PL3
Patient Care and Procedural Skills	PL1	PL1, PL2	PL2, PL3	PL3
Interpersonal and Communication Skills	PL1	PL1, PL2	PL2, PL3	PL3
Professionalism		PL1	PL2, PL3	PL3
Practice-Based Learning and Improvement	PL1	PL1, PL2	PL2, PL3	PL3
Systems-Based Practice	PL1	PL1, PL2	PL2, PL3	PL3

Patient Care 1: History				
Level 1	**Level 2**	**Level 3**	**Level 4**	**Level 5**
Gathers information strictly following a template	Adapts template to filter and prioritize pertinent positives and negatives based on broad diagnostic categories or possible diagnoses	Filters, prioritizes, and synthesizes the history to develop a differential diagnosis in real-time for uncomplicated or typical presentations	Filters, prioritizes, and synthesizes the history to develop a differential diagnosis in real time for complicated or atypical presentations	Recognizes and probes subtle clues from patients and families; distinguishes nuances among diagnoses to efficiently drive further information gathering

Systems-Based Practice 4: System Navigation for Patient-Centered Care – Transitions in Care				
Level 1	**Level 2**	**Level 3**	**Level 4**	**Level 5**
Uses a standard template for	Adapts a standard template, recognizing key	Performs safe and effective transitions of care/hand-offs in	Performs and advocates for safe and effective	Coaches others in improving transitions of care

transitions of care/hand-offs	elements for safe and effective transitions of care/hand-offs in routine clinical situations	complex clinical situations, and ensures closed-loop communication	transitions of care/hand-offs within and across health care delivery systems, including transitions to adult care	within and across health care delivery systems to optimize patient outcomes

Interpersonal and Communication Skills 2: Interprofessional and Team Communication				
Level 1	**Level 2**	**Level 3**	**Level 4**	**Level 5**
Respectfully requests a consultation, with guidance Identifies the members of the interprofessional team	Clearly and concisely requests consultation by communicating patient information Participates within the interprofessional team	Formulates a specific question for consultation and tailors communication strategy Uses bi-directional communication within the interprofessional team	Coordinates consultant recommendations to optimize patient care Facilitates interprofessional team communication	Maintains a collaborative relationship with referring providers that maximizes adherence to practice recommendations Coaches others in effective communication within the interprofessional team

Resident Rotation in NICU

Orientation: On your first day in the NICU:

A. With fellow in a formal session for an administration over view including computerized order sets.
B. With attending, in an informal meeting regarding learning objectives and expectations.

Resident's Function:

Labor and delivery: (a resident baby-baby beeper is provided)

1. Attend L&D with a NICU nurse, and a nurse practitioner/ fellow/ attending.
2. Residents could attend level 1 deliveries with a NICU nurse (repeat term C/S), after they are credentialed (minimum of 3 attendance previously). They may call/consult an NNP or a fellow if situation requires higher level input.
3. They can participate in all higher level of deliveries with defined personnel as per the triage sheet. (Level 2 is with an NNP/or a fellow, Level 3 or higher with an NNP or a fellow and an attending).

Patient care in NICU:

1. Learn to provide complete care to patients, including complex decision making.
2. Admit discharge and transfer patients, write daily notes/orders, call for consults.
3. Participate and discuss daily TPN orders with the service fellow prior to attending rounds.
4. Participate in attending rounds (10-1pm), sign out rounds (4pm) and discharge planning rounds (every Tuesday at 3pm)

Participation in Procedures:

Residents must participate in common NICU procedures i.e. intubation, UV/UA line placement, spinal tap, artery puncture, venous puncture etc. Residents will be given first opportunity on their own cases.

NRP and PICC line training:

NRP training (mandatory):

1. A formal NRP course at the beginning of residency during general orientation
2. During their NICU rotation, simulation lab training: Two sessions are available per month on 2nd and 4th Thursday for NRP mock code with debriefing afterwards. You must attend one of these sessions. Please schedule the date with Dr. Patricia Mele. (DNP) during the first week of your rotation.

PICC Insertion training (optional):

We are also planning to offer PICC line placement training. It will involve the following:

1. On line training. We encourage you to complete the online PICC line training course at http://www.hsc.stonybrook.edu/training/picc/index.cfm website. Password to be obtained from Neill Clenaghan/UHMC, Medical Informatics Department,
   Health Sciences Center, Level 3, Room 119, Stony Brook University, Extension: 631-444-2837
2. Online training must be completed in order for them to scrub and assist in doing PICCs.
3. Practice on Simulation on sim-baby/video (Ask Dr. Patricia Mele for the tape)
4. Scrubbing and assisting PICC line placement on a NICU patient with an NPP/ Fellow.

Curriculum/Education:

1. Small topic discussions on rounds for 15-20 minutes (by fellows, NNPs, attending physicians).
2. Didactic sessions on weekdays at 1 or 3pm.

Topics: Resuscitation, Fluid and electrolytes, acid base balance, Jaundice, Sepsis, TPN, use of antibiotics, AOP, NEC, PDA, RDS, BPD, IVH/ICH/PVL, Metabolic screening, ROP screening, Discharge planning including car seat testing.

3. Whenever possible attend neonatal conferences including Case Conferences, Physiology Conferences Journal Clubs and M&Ms.

Work hour regulation:

Follow guidelines as per department and RRC education and work hours requirements. Educational sessions may be attended on a voluntary basis after being on call, but returning to patient care/areas is not permitted.

Feedback:

It should occur at mid-rotation and at the end of rotation. It is your responsibility to set up a meeting with your attending physician before the completion of the second week of your NICU block. During this meeting the faculty will solicit your feedback about the rotation thus far as well as give you constructive feedback about your performance. All feedback sessions will be documented in New Innovations.

Division of Neonatology
Criteria

Criteria for Residents to Call Fellows

1. All x-rays
2. All blood gases
3. All critical test results and critical lab values
4. Bilirubin level requiring phototherapy
5. Sodium less than 132 and more than 145
6. Glucose less than 50 more than 150
7. Potassium less than 3.5 more than 6
8. Calcium less than 8 more than 11
9. Deviations from the blood pressure protocol
10. All consults to well-baby nursery
11. Any feeding problems/abdominal distension
12. New medication orders
13. Temperature instability
14. Transfusions
15. Any increase in F_IO_2 greater than 10% over baseline.
16. Significant, increasing or persistent apnea or bradycardia.
17. Infants requiring positive pressure ventilation.
18. Arrhythmias
19. Loss of IV access
20. Problems with any central line

Criteria for Fellows to Call Attending

1. Change of vent mode
2. Serial bad blood gases or PCO2> 80, base deficit more than 8, pH less than 7.20
3. All critical tests and critical value calls from the lab
4. Deviations from blood pressure protocol
5. Any changes made on lightening rounds
6. Pneumothorax – placement/replacement of chest tubes
7. Admission to NICU
8. Existing patient/initiation of antibiotics
9. Transport calls
10. Deliveries (immediately) less than 32 weeks and/or less than a kilogram
11. NAS scores requiring initiation of morphine
12. Bilirubin level requiring exchange transfusion.
13. Prenatal Consult
14. Significant disagreement with nursing or practitioner or consultants

Criteria for NNP to Call Fellows

1. Change of vent mode
2. Serial bad blood gases or PCO2> 80, base deficit more than 8, pH less than 7.20
3. All critical tests and critical value calls from the lab
4. Deviations from blood pressure protocol and any need for pressor therapy
5. Any changes made on lightening rounds
6. Pneumothorax – placement/replacement of chest tubes
7. Admission to NICU
8. Existing patient/initiation of antibiotics
9. Transport calls
10. Deliveries (immediately) less than 32 weeks and/or less than a kilogram
11. NAS scores requiring initiation of morphine
12. Bilirubin level requiring exchange transfusion.
13. Prenatal Consult
14. Significant disagreement with nursing or practitioner or consultants
15. All Post- op readmissions
16. Transfusions
17. Significant problems with any central lines

NICU Orders Instructions for LIP's

ORDERING MEDICATIONS

- When you first open a chart use 2 patient identifiers to confirm you are ordering medications on the correct patient.
- Before entering any orders on a new admission, you must complete the physician factor form to document the infant's dosing weight you want to use.
- Use the NICU Folder for ordering medications.
- Use the NICU Admission Power Plan to admit the patient.
- Do NOT order the Hepatitis B vaccine if it is still pending consent.
- If picking medications outside of the folder always choose the medication with the route. The dose can always be changed, but the drug product is linked to the route.
- Medications should be ordered only using interval frequencies (INT) and the start time should be discussed with the nurse as the first dose to fire on the eMAR is directly related to the ordering start time. You may need to put a future start time. This is best done if medications orders are written at the bedside with collaboration between the LIP and RN.
- DO NOT order medications BID, TID, QID, QD frequencies.
- Include your desired target dose in comment section.
- Every week we do order rewrites. You need to cancel the order and reorder only if there is a dosage change. If medications are unchanged the LIPs will write a communication order for the meds that they reviewed but are not changing the dose. Also check that the stop date is not before the next rewrite date. Weekly rewrites should be done at bedside with RN.
- Edit the comments section every time you use the cancel reorder or copy function.

- When ordering Vaccines order them as "On Call"
- When ordering Caffeine Citrate order as INT Q 24H to start at 1200
- When ordering Aldactone order INT Q 24H to start at 1800
- When ordering Zantac order as either INT Q 12H starting at 0800 or 2000
  INT Q 8H starting at 0001 or 0800 or 2000
- When ordering Chlorothiazide order as INT Q 12H starting at either 0200 or 1400
- When ordering Fer-In-Sol order as INT Q 24H starting at 1200
- When ordering Vitamins order as INT Q 24H starting at 0900
- If you are ordering Vitamins after 10AM or Iron after 12PM and you want them to start today indicate "first dose now," otherwise they will start the next day
- When ordering Gentamicin on admission first dose should be ordered as STAT, first dose of Ampicillin can be ordered as routine. Use the NICU antimicrobial sheet to order these meds.
- Communication orders do not go to pharmacy so do NOT order any pharmaceuticals using a communication order.
- Pharmacy may reject a medication orders (for example for non-formulary medications), and they should notify you if this was done.
- To determine whether an ordered medication was administered, look on the eMAR and MAR summary.

IV FLUID

- IV fluids should not have a stop date entered unless you want a particular stop date. Controlled substances only need to be reordered every 7 days, other fluids (with the exception of TPN) are good for 28 days.
- Do NOT use the Cancel/DC function for changing rates on continuous infusions, use the modify function (also remember you cannot modify dosages).
- Do NOT put IV rates in the comment section. The comment section can have the targeted fluid intake in mL/kg/day.
- When titrating IV rates with feeds, the IV rate changes are entered as a comment on the feed order.
- Dextrose with electrolytes are dispensed in 500mL bags only.
  Click on the desired IV dextrose. Electrolyte window shows up, enter the rate, enter Na/KCL/Ca as calculated for 500ml bag.
  Under comment section enter the fluid order as meq/kg and electrolyte ratios i.e. D10 1/2/2
  When Na/KCL/Ca is not needed check the yellow box in IV details

TPN ORDERS

- TPN is ordered with a 24 hour stop time. Put in the start time as 5pm otherwise the order completes at the time you place the order the following morning. This makes it difficult for the nurse to document since the order is discontinued and falls of the MAR.
- To reorder the same TPN for the next day use the Copy Order and put the start time as 5PM. If you cancel/reorder the current TPN will immediately be cancelled upon signing.
- Only Vanilla TPN is available 24/7 all other TPNs are dispensed at 4PM.
- Edit the comments section every time you use the copy function because all of yesterday's comments are copied onto today's order as well as any additional comments.

ORDERING STANDARD ORDER SETS

- Search for NICU Folder for all standard drips (e.g. Dopamine, Morphine, etc.)
- Order the rate
- Under comments order the dosing as micrograms or mg/kg/min or kg/hr not mg/hr

NICU POWERPLANS

- There are many NICU/Neonatal power plans available, use them
- To avoid duplicate orders don't forget to merge existing power plans (L&D or Newborn) with NICU admission power plan
- D/C orders from existing power plans if they are no longer appropriate.

ORDERING LABS

- When ordering labs make sure it says "Nurse Collect" not "Lab Collect"
- When ordering labs for AM put tomorrow's date and 0001 for collection time.
- Order AM labs STAT (this is for the lab to run it stat) when applicable. In comments the LIP needs to enter this text "Draw after midnight"
- Replacement lab orders that get clotted/ QNS/ dropped etc. can be placed by a nurse or clerk
- Place the request for drug peak and trough levels in the comment field of the med order. The nurse can then place the order at the appropriate time. The NICU Antimicrobial Power Plan has these comments entered already.

PLACING GENERAL ORDERS

- Unless it is essential that the route of PO feeding is specified the LIPs will order the feeding route as" Oral "this will allow the nurse to choose whether it is nip/ng/og
- When ordering weekly length, weight or/and head circumference change frequency to 7 days so you don't have to order it again. Still add comment Wednesdays 0100-0500.
- Whenever modifying an existing order, you must review the orders comment section and delete obsolete comments.
- If you give the Vitamin K and Erythromycin in the DR print your name on the Birth Report not just your initials.
- Never order blood remotely, order blood at the bedside with the nurse so that the correct patient is getting transfused.
- Use the delete function if you placed the wrong order. This will remove it from the eMAR. Never delete an order that has been carried out by the nurse (i.e. medication already administered).
- Use the Suspend/Resume function for those babies whose meds you wish to stop for the OR and plan to resume post-op.